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<110> The Government of the United States of America as  
represented by the Secretary of the Department of Health and  
Human Services

Blackshear, Perry J.  
Zeldin, Darryl C.  
Graves, Joan P.  
Stumpo, Deborah J.

<120> COMPOSITIONS AND METHODS FOR DIAGNOSTICS AND THERAPEUTICS FOR  
HYDORCEPHALUS

<130> 4239-64828-02

<150> 60/374,184

<151> 2002-04-19

<150> 60/388,266

<151> 2002-06-13

<150> PCT/US03/12348

<151> 2003-04-18

<160> 39

<170> PatentIn version 3.2

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Met Ile Lys Arg  
1

aga gcc cac cct ggt gcg gga ggc gac agg acc agg cct cga cgg cgc 165  
Arg Ala His Pro Gly Ala Gly Gly Asp Arg Thr Arg Pro Arg Arg Arg  
5 10 15 20

cgt tcc act gag agc tgg att gaa aga tgt ctc aac gaa agt gaa aac 213  
Arg Ser Thr Glu Ser Trp Ile Glu Arg Cys Leu Asn Glu Ser Glu Asn  
25 30 35

aaa cgt tat tcc agc cac aca tct ctg ggg aat gtt tct aat gat gaa 261  
Lys Arg Tyr Ser Ser His Thr Ser Leu Gly Asn Val Ser Asn Asp Glu  
40 45 50

|  |  |     |
|--|--|-----|
| aat gag gaa aaa gaa aat aat aga gca tcc aag ccc cac tcc act cct<br>Asn Glu Glu Lys Glu Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro | 55                   60                   65                       | 309 |
| gct act ctg caa tgg ctg gag gag aac tat gag att gca gag ggg gtc<br>Ala Thr Leu Gln Trp Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val | 70                   75                   80                       | 357 |
| tgc atc cct cgc agt gcc ctc tat atg cat tac ctg gat ttc tgc gag<br>Cys Ile Pro Arg Ser Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu | 85                   90                   95                   100 | 405 |
| aag aat gat acc caa cct gtc aat gct gcc agc ttt gga aag atc ata<br>Lys Asn Asp Thr Gln Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile | 105                110                115                          | 453 |
| agg cag cag ttt cct cag tta acc acc aga aga ctc ggg acc cga gga<br>Arg Gln Gln Phe Pro Gln Leu Thr Thr Arg Arg Leu Gly Thr Arg Gly | 120                125                130                          | 501 |
| cag tca aag tac cat tac tat ggc att gca gtg aaa gaa agc tcc caa<br>Gln Ser Lys Tyr His Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln     | 135                140                145                          | 549 |
| tat tat gat gtg atg tat tcc aag aaa gga gct gcc tgg gtg agt gag<br>Tyr Tyr Asp Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu | 150                155                160                          | 597 |
| acg ggc aag aaa gaa gtg agc aaa cag aca gtg gca tat tca ccc cgg<br>Thr Gly Lys Lys Glu Val Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg | 165                170                175                180       | 645 |
| tcc aaa ctc gga aca ctg ctg cca gaa ttt ccc aat gtc aaa gat cta<br>Ser Lys Leu Gly Thr Leu Leu Pro Glu Phe Pro Asn Val Lys Asp Leu | 185                190                195                          | 693 |
| aat ctg cca gcc agc ctg cct gag gag aag gtt tct acc ttt att atg<br>Asn Leu Pro Ala Ser Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met | 200                205                210                          | 741 |
| atg tac aga aca cac tgt cag aga ata ctg gac act gta ata aga gcc<br>Met Tyr Arg Thr His Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala | 215                220                225                          | 789 |
| aac ttt gat gag gtt caa agt ttc ctt ctg cac ttt tgg caa gga atg<br>Asn Phe Asp Glu Val Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met | 230                235                240                          | 837 |
| ccg ccc cac atg ctg cct gtg ctg ggc tcc tcc acg gtg gtg aac att<br>Pro Pro His Met Leu Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile | 245                250                255                260       | 885 |
| gtc ggc gtg tgt gac tcc atc ctc tac aaa gct atc tcc ggg gtg ctg<br>Val Gly Val Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu | 265                270                275                          | 933 |
| atg ccc act gtg ctg cag gca tta cct gac agc tta act cag gtg att  |  | 981 |

|   |     |      |     |
|---|-----|------|-----|
| Met Pro Thr Val Leu Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile |     |      |     |
| 280   | 285 | 290  |     |
| cga aag ttt gcc aag caa ctg gat gag tgg cta aaa gtg gct ctc cac |     | 1029 |     |
| Arg Lys Phe Ala Lys Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His |     |      |     |
| 295   | 300 | 305  |     |
| gac ctc cca gaa aac ttg cga aac atc aag ttc gaa ttg tcg aga agg |     | 1077 |     |
| Asp Leu Pro Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg |     |      |     |
| 310   | 315 | 320  |     |
| ttc tcc caa att ctg aga cgg caa aca tca cta aat cat ctc tgc cag |     | 1125 |     |
| Phe Ser Gln Ile Leu Arg Arg Gln Thr Ser Leu Asn His Leu Cys Gln |     |      |     |
| 325   | 330 | 335  | 340 |
| gca tct cga aca gtg atc cac agt gca gac atc acg ttc caa atg ctg |     | 1173 |     |
| Ala Ser Arg Thr Val Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu |     |      |     |
| 345   | 350 | 355  |     |
| gaa gac tgg agg aac gtg gac ctg aac agc atc acc aag caa acc ctt |     | 1221 |     |
| Glu Asp Trp Arg Asn Val Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu |     |      |     |
| 360   | 365 | 370  |     |
| tac acc atg gaa gac tct cgc gat gag cac cgg aaa ctc atc acc caa |     | 1269 |     |
| Tyr Thr Met Glu Asp Ser Arg Asp Glu His Arg Lys Leu Ile Thr Gln |     |      |     |
| 375   | 380 | 385  |     |
| tta tat cag gag ttt gac cat ctc ttg gag gag cag tct ccc atc gag |     | 1317 |     |
| Leu Tyr Gln Glu Phe Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu |     |      |     |
| 390   | 395 | 400  |     |
| tcc tac att gag tgg ctg gat acc atg gtt gac cgc tgt gtt gtg aag |     | 1365 |     |
| Ser Tyr Ile Glu Trp Leu Asp Thr Met Val Asp Arg Cys Val Val Lys |     |      |     |
| 405   | 410 | 415  | 420 |
| gtg gct gcc aag aga caa ggg tcc ttg aag aaa gtg gcc cag cag ttc |     | 1413 |     |
| Val Ala Ala Lys Arg Gln Gly Ser Leu Lys Lys Val Ala Gln Gln Phe |     |      |     |
| 425   | 430 | 435  |     |
| ctc ttg atg tgg tcc tgt ttc ggc aca agg gtg atc cgg gac atg acc |     | 1461 |     |
| Leu Leu Met Trp Ser Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr |     |      |     |
| 440   | 445 | 450  |     |
| ttg cac agc gcc ccc agc ttc ggg tct ttt cac cta att cac tta atg |     | 1509 |     |
| Leu His Ser Ala Pro Ser Phe Gly Ser Phe His Leu Ile His Leu Met |     |      |     |
| 455   | 460 | 465  |     |
| ttt gat gac tac gtg ctc tac ctg tta gaa tct ctg cac tgt cag gag |     | 1557 |     |
| Phe Asp Asp Tyr Val Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu |     |      |     |
| 470   | 475 | 480  |     |
| cgg gcc aat gag ctc atg cga gcc atg aag gga gaa gga agc act gca |     | 1605 |     |
| Arg Ala Asn Glu Leu Met Arg Ala Met Lys Gly Glu Gly Ser Thr Ala |     |      |     |
| 485   | 490 | 495  | 500 |
| gaa gtc cga gaa gag atc atc ttg aca gag gct gcc gca cca acc cct |     | 1653 |     |
| Glu Val Arg Glu Glu Ile Ile Leu Thr Glu Ala Ala Pro Thr Pro     |     |      |     |

|  | 505 | 510 | 515 |      |
|--|-----|-----|-----|------|
| tca cca gtg cca tcg ttt tct cca gca aaa tct gcc aca tct gtg gaa<br>Ser Pro Val Pro Ser Phe Ser Pro Ala Lys Ser Ala Thr Ser Val Glu |     |     |     | 1701 |
| 520  | 525 |     | 530 |      |
| gtg cca cct ccc tct tcc cct gtt agc aat cct tcc cct gag tac act<br>Val Pro Pro Pro Ser Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr |     |     |     | 1749 |
| 535  | 540 |     | 545 |      |
| ggc ctc agc act aca ggt aat gga aag tcc ttc aaa aac ttt ggg tag<br>Gly Leu Ser Thr Thr Gly Asn Gly Lys Ser Phe Lys Asn Phe Gly     |     |     |     | 1797 |
| 550  | 555 |     | 560 |      |
| ttaatgttg aagaaaggc tttctgccag cctggcaac atagttagac ttcatattcca  |     |     |     | 1857 |
| cacacacaaa aagccagaca tcttggctca cacctgttgtt cccagctact tgggaggctg   |     |     |     | 1917 |
| aggtggaga attgcttgag cccaggagct acgatcgac cactgcattc tagccttagt  |     |     |     | 1977 |
| gatacagtga gaccttgct caaaaaaaga aaaacaggc tttctggaaa aacattttc   |     |     |     | 2037 |
| tcccacaatc tccaaaagat aatgccaaa cctgggtatc ttctggatt tgtaatgac   |     |     |     | 2097 |
| gtacaggtat tcatttattc attggcacat attctgtatg ctgctgtttt caagttggca  |     |     |     | 2157 |
| aattaagcat atgataaaat cccaaaacta a   |     |     |     | 2188 |

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| 1   | 5 | 10 | 15 |

|   |    |    |  |
|---|----|----|--|
| Pro Arg Arg Arg Ser Thr Glu Ser Trp Ile Glu Arg Cys Leu Asn |    |    |  |
| 20  | 25 | 30 |  |

|   |    |    |  |
|---|----|----|--|
| Glu Ser Glu Asn Lys Arg Tyr Ser Ser His Thr Ser Leu Gly Asn Val |    |    |  |
| 35  | 40 | 45 |  |

|   |    |    |  |
|---|----|----|--|
| Ser Asn Asp Glu Asn Glu Glu Lys Glu Asn Asn Arg Ala Ser Lys Pro |    |    |  |
| 50  | 55 | 60 |  |

|   |    |    |    |
|---|----|----|----|
| His Ser Thr Pro Ala Thr Leu Gln Trp Leu Glu Glu Asn Tyr Glu Ile |    |    |    |
| 65  | 70 | 75 | 80 |

Ala Glu Gly Val Cys Ile Pro Arg Ser Ala Leu Tyr Met His Tyr Leu

85

90

95

Asp Phe Cys Glu Lys Asn Asp Thr Gln Pro Val Asn Ala Ala Ser Phe  
100 105 110

Gly Lys Ile Ile Arg Gln Gln Phe Pro Gln Leu Thr Thr Arg Arg Leu  
115 120 125

Gly Thr Arg Gly Gln Ser Lys Tyr His Tyr Tyr Gly Ile Ala Val Lys  
130 135 140

Glu Ser Ser Gln Tyr Tyr Asp Val Met Tyr Ser Lys Lys Gly Ala Ala  
145 150 155 160

Trp Val Ser Glu Thr Gly Lys Lys Glu Val Ser Lys Gln Thr Val Ala  
165 170 175

Tyr Ser Pro Arg Ser Lys Leu Gly Thr Leu Leu Pro Glu Phe Pro Asn  
180 185 190

Val Lys Asp Leu Asn Leu Pro Ala Ser Leu Pro Glu Glu Lys Val Ser  
195 200 205

Thr Phe Ile Met Met Tyr Arg Thr His Cys Gln Arg Ile Leu Asp Thr  
210 215 220

Val Ile Arg Ala Asn Phe Asp Glu Val Gln Ser Phe Leu Leu His Phe  
225 230 235 240

Trp Gln Gly Met Pro Pro His Met Leu Pro Val Leu Gly Ser Ser Thr  
245 250 255

Val Val Asn Ile Val Gly Val Cys Asp Ser Ile Leu Tyr Lys Ala Ile  
260 265 270

Ser Gly Val Leu Met Pro Thr Val Leu Gln Ala Leu Pro Asp Ser Leu  
275 280 285

Thr Gln Val Ile Arg Lys Phe Ala Lys Gln Leu Asp Glu Trp Leu Lys  
290 295 300

Val Ala Leu His Asp Leu Pro Glu Asn Leu Arg Asn Ile Lys Phe Glu  
305 310 315 320

Leu Ser Arg Arg Phe Ser Gln Ile Leu Arg Arg Gln Thr Ser Leu Asn  
325 330 335

His Leu Cys Gln Ala Ser Arg Thr Val Ile His Ser Ala Asp Ile Thr  
340 345 350

Phe Gln Met Leu Glu Asp Trp Arg Asn Val Asp Leu Asn Ser Ile Thr  
355 360 365

Lys Gln Thr Leu Tyr Thr Met Glu Asp Ser Arg Asp Glu His Arg Lys  
370 375 380

Leu Ile Thr Gln Leu Tyr Gln Glu Phe Asp His Leu Leu Glu Glu Gln  
385 390 395 400

Ser Pro Ile Glu Ser Tyr Ile Glu Trp Leu Asp Thr Met Val Asp Arg  
405 410 415

Cys Val Val Lys Val Ala Ala Lys Arg Gln Gly Ser Leu Lys Lys Val  
420 425 430

Ala Gln Gln Phe Leu Leu Met Trp Ser Cys Phe Gly Thr Arg Val Ile  
435 440 445

Arg Asp Met Thr Leu His Ser Ala Pro Ser Phe Gly Ser Phe His Leu  
450 455 460

Ile His Leu Met Phe Asp Asp Tyr Val Leu Tyr Leu Leu Glu Ser Leu  
465 470 475 480

His Cys Gln Glu Arg Ala Asn Glu Leu Met Arg Ala Met Lys Gly Glu  
485 490 495

Gly Ser Thr Ala Glu Val Arg Glu Glu Ile Ile Leu Thr Glu Ala Ala  
500 505 510

Ala Pro Thr Pro Ser Pro Val Pro Ser Phe Ser Pro Ala Lys Ser Ala  
515 520 525

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Pro Glu Tyr Thr Gly Leu Ser Thr Thr Gly Asn Gly Lys Ser Phe Lys  
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Asn Phe Gly

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Met Asn Trp  
1  
gct gcc ttc gga ggg tct gaa ttc ttc atc cca gaa ggc att cag ata 166  
Ala Ala Phe Gly Gly Ser Glu Phe Phe Ile Pro Glu Gly Ile Gln Ile  
5 10 15  
gat tcg aga tgc cca cta agc aga aat atc acg gaa tgg tac cat tac 214  
Asp Ser Arg Cys Pro Leu Ser Arg Asn Ile Thr Glu Trp Tyr His Tyr  
20 25 30 35  
tat ggc att gca gtg aaa gaa agc tcc caa tat tat gat gtg atg tat 262  
Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp Val Met Tyr  
40 45 50  
tcc aag aaa gga gct gcc tgg gtg agt gag acg ggc aag aaa gaa gtg 310  
Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys Lys Glu Val  
55 60 65  
agc aaa cag aca gtg gca tat tca ccc cgg tcc aaa ctc gga aca ctg 358  
Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu Gly Thr Leu  
70 75 80  
ctg cca gaa ttt ccc aat gtc aaa gat cta aat ctg cca gcc agc ctg 406  
Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro Ala Ser Leu  
85 90 95  
cct gag gag aag gtt tct acc ttt att atg atg tac aga aca cac tgt 454  
Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg Thr His Cys  
100 105 110 115  
cag aga ata ctg gac act gta ata aga gcc aac ttt gat gag gtt caa 502  
Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp Glu Val Gln  
120 125 130

|   |     |      |     |
|---|-----|------|-----|
| agt ttc ctt ctg cac ttt tgg caa gga atg ccg ccc cac atg ctg cct |     | 550  |     |
| Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His Met Leu Pro |     |      |     |
| 135   | 140 | 145  |     |
| gtg ctg ggc tcc tcc acg gtg gtg aac att gtc ggc gtg tgt gac tcc |     | 598  |     |
| Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val Cys Asp Ser |     |      |     |
| 150   | 155 | 160  |     |
| atc ctc tac aaa gct atc tcc ggg gtg ctg atg ccc act gtg ctg cag |     | 646  |     |
| Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr Val Leu Gln |     |      |     |
| 165   | 170 | 175  |     |
| gca tta cct gac agc tta act cag gtg att cga aag ttt gcc aag caa |     | 694  |     |
| Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe Ala Lys Gln |     |      |     |
| 180   | 185 | 190  | 195 |
| ctg gat gag tgg cta aaa gtg gct ctc cac gac ctc cca gaa aac ttg |     | 742  |     |
| Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro Glu Asn Leu |     |      |     |
| 200   | 205 | 210  |     |
| cga aac atc aag ttc gaa ttg tcg aga agg ttc tcc caa att ctg aga |     | 790  |     |
| Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln Ile Leu Arg |     |      |     |
| 215   | 220 | 225  |     |
| cgg caa aca tca cta aat cat ctc tgc cag gca tct cga aca gtg atc |     | 838  |     |
| Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg Thr Val Ile |     |      |     |
| 230   | 235 | 240  |     |
| cac agt gca gac atc acg ttc caa atg ctg gaa gac tgg agg aac gtg |     | 886  |     |
| His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp Arg Asn Val |     |      |     |
| 245   | 250 | 255  |     |
| gac ctg aac agc atc acc aag caa acc ctt tac acc atg gaa gac tct |     | 934  |     |
| Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met Glu Asp Ser |     |      |     |
| 260   | 265 | 270  | 275 |
| cgc gat gag cac cgg aaa ctc atc acc caa tta tat cag gag ttt gac |     | 982  |     |
| Arg Asp Glu His Arg Lys Leu Ile Thr Gln Leu Tyr Gln Glu Phe Asp |     |      |     |
| 280   | 285 | 290  |     |
| cat ctc ttg gag gag cag tct ccc atc gag tcc tac att gag tgg ctg |     | 1030 |     |
| His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile Glu Trp Leu |     |      |     |
| 295   | 300 | 305  |     |
| gat acc atg gtt gac cgc tgt gtt gtg aag gtg gct gcc aag aga cga |     | 1078 |     |
| Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala Lys Arg Arg |     |      |     |
| 310   | 315 | 320  |     |
| ggg tcc ttg aag aaa gtg gcc cag cag ttc ctc ttg atg tgg tcc tgt |     | 1126 |     |
| Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met Trp Ser Cys |     |      |     |
| 325   | 330 | 335  |     |
| ttc ggc aca agg gtg atc cgg gac atg acc ttg cac agc gcc ccc agc |     | 1174 |     |
| Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser Ala Pro Ser |     |      |     |
| 340   | 345 | 350  | 355 |

|  |     |     |     |      |      |
|--|-----|-----|-----|------|------|
| ttc ggg tct ttt cac cta att cac tta atg ttt gat gac tac gtg ctc<br>Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp Tyr Val Leu | 360 | 365 | 370 | 1222 |      |
| tac ctg tta gaa tct ctg cac tgt cag gag cgg gcc aat gag ctc atg<br>Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn Glu Leu Met | 375 | 380 | 385 | 1270 |      |
| cga gcc atg aag gga gaa gga agc act gca gaa gtc cga gaa gag atc<br>Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu Val Arg Glu Glu Ile | 390 | 395 | 400 | 1318 |      |
| atc ttg aca gag gct gcc gca cca acc cct tca cca gtg cca tcg ttt<br>Ile Leu Thr Glu Ala Ala Pro Thr Pro Ser Pro Val Pro Ser Phe     | 405 | 410 | 415 | 1366 |      |
| tct cca gca aaa tct gcc aca tct gtg gaa gtg cca cct ccc tct tcc<br>Ser Pro Ala Lys Ser Ala Thr Ser Val Glu Val Pro Pro Pro Ser Ser | 420 | 425 | 430 | 435  | 1414 |
| cct gtt agc aat cct tcc cct gag tac act ggc ctc agc act aca gga<br>Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly Leu Ser Thr Thr Gly | 440 | 445 | 450 | 1462 |      |
| gca atg cag gct tac acg tgg tct cta aca tac aca gtg acg acg gct<br>Ala Met Gln Ala Tyr Thr Trp Ser Leu Thr Tyr Thr Val Thr Thr Ala | 455 | 460 | 465 | 1510 |      |
| gct ggg tcc cca gct gag aac tcc caa cag ctg ccc tgt atg agg aac<br>Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys Met Arg Asn | 470 | 475 | 480 | 1558 |      |
| act cac gtg cct tct tcc gtc aca cac agg ata cca gtt tat ccc<br>Thr His Val Pro Ser Ser Val Thr His Arg Ile Pro Val Tyr Pro         | 485 | 490 | 495 | 1606 |      |
| cac aga gag gaa cat gga tac acg gga agc tat aac tat ggg agc tat<br>His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr Gly Ser Tyr | 500 | 505 | 510 | 515  | 1654 |
| ggc aac cag cat cct cac ccc atg cag agc cag tat ccg gcc ctc cct<br>Gly Asn Gln His Pro His Pro Met Gln Ser Gln Tyr Pro Ala Leu Pro | 520 | 525 | 530 | 1702 |      |
| cat gac aca gct atc tct ggg cca ctc cac tat gcc cct tac cac agg<br>His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ala Pro Tyr His Arg | 535 | 540 | 545 | 1750 |      |
| agc tct gca cag tac cct ttt aat agc ccc act tcc cgg atg gaa cct<br>Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr Ser Arg Met Glu Pro | 550 | 555 | 560 | 1798 |      |
| tgt ttg atg agc agt act ccc aga ctg cat cct acc cca gtc act ccc<br>Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro Thr Pro Val Thr Pro | 565 | 570 | 575 | 1846 |      |
| cgc tgg cca gag gtg ccc tca gcc aac acg tgc tac aca aac ccg tct  |     |     |     | 1894 |      |

|            |             |             |             |            |             |     |     |     |     |     |     |     |     |     |     |      |
|------------|-------------|-------------|-------------|------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Arg        | Trp         | Pro         | Glu         | Val        | Pro         | Ser | Ala | Asn | Thr | Cys | Tyr | Thr | Asn | Pro | Ser |      |
| 580        |             |             |             | 585        |             |     |     | 590 |     |     |     |     |     | 595 |     |      |
| gtg        | cat         | tct         | gcg         | agg        | tac         | gga | aac | tct | agt | gac | atg | tat | aca | cct | ctg | 1942 |
| Val        | His         | Ser         | Ala         | Arg        | Tyr         | Gly | Asn | Ser | Ser | Asp | Met | Tyr | Thr | Pro | Leu |      |
|            |             |             |             | 600        |             |     |     | 605 |     |     |     |     | 610 |     |     |      |
| aca        | acg         | cgc         | agg         | aat        | tct         | gaa | tat | gag | cac | atg | caa | cac | ttt | cct | ggc | 1990 |
| Thr        | Thr         | Arg         | Arg         | Asn        | Ser         | Glu | Tyr | Glu | His | Met | Gln | His | Phe | Pro | Gly |      |
|            |             |             |             | 615        |             |     |     | 620 |     |     |     | 625 |     |     |     |      |
| ttt        | gct         | tac         | atc         | aac        | gga         | gag | gcc | tct | aca | gga | tgg | gct | aaa | tga |     | 2035 |
| Phe        | Ala         | Tyr         | Ile         | Asn        | Gly         | Glu | Ala | Ser | Thr | Gly | Trp | Ala | Lys |     |     |      |
|            |             |             |             | 630        |             |     |     | 635 |     |     | 640 |     |     |     |     |      |
| ctgctatcat | aggcatccat  | attnaatatt  | aataataata  | attnataata | ataataaacc  |     |     |     |     |     |     |     |     |     |     | 2095 |
| caacacccat | cccccagaag  | actttatctc  | tatacattgt  | aactcatggg | ctattcctaa  |     |     |     |     |     |     |     |     |     |     | 2155 |
| gtgcccat   | tcctaattgaa | catgaggatg  | ggatcaatgt  | ggatgaata  | aacttttagtt |     |     |     |     |     |     |     |     |     |     | 2215 |
| cagaaacagg | acttactaaa  | agtcagtggg  | actgggttc   | tgtagccaag | ccagacttga  |     |     |     |     |     |     |     |     |     |     | 2275 |
| ctgtttctgt | agagcactat  | ctcgcccagg  | ccattctgtg  | cctttccct  | ctgttccatg  |     |     |     |     |     |     |     |     |     |     | 2335 |
| actttgc    | ttgtggcaa   | ccacttctag  | taagctactg  | atttcctgt  | tgacaaaatc  |     |     |     |     |     |     |     |     |     |     | 2395 |
| tcttagtct  | tgaaggatgg  | atactggaga  | cagaatctgg  | tttgtgttct | tggatggca   |     |     |     |     |     |     |     |     |     |     | 2455 |
| cataatttac | caagagcatt  | cacccgc     | tctgtctgt   | cattgtactg | tacaaggaac  |     |     |     |     |     |     |     |     |     |     | 2515 |
| agccctcaga | cgtgttctgc  | acatcccttc  | ttccctgggg  | taccatccct | atttcctgga  |     |     |     |     |     |     |     |     |     |     | 2575 |
| gcaccaggc  | taaatgggaa  | gctatctgga  | aactctagat  | tttctgtcat | acccacatct  |     |     |     |     |     |     |     |     |     |     | 2635 |
| gtcacagtac | ctgcattgtc  | ttggaaatgt  | agcactgtct  | tgagggagg  | aagaggctcg  |     |     |     |     |     |     |     |     |     |     | 2695 |
| ttctgtattt | ccttaagttt  | attgaggttt  | gttaggagact | ggttcttcta | catacaagga  |     |     |     |     |     |     |     |     |     |     | 2755 |
| tttgtcttaa | gtttgcacaa  | tggctagtgt  | cagcaaaagg  | caggagagg  | ttttgtttt   |     |     |     |     |     |     |     |     |     |     | 2815 |
| ttttttaagt | tctatgagaa  | tgtggattt   | tggcattgag  | tatcacactc | agctctgctg  |     |     |     |     |     |     |     |     |     |     | 2875 |
| tgttaacttt | gtgaaactgg  | atgaaacaaa  | ctttaactta  | ccaagcacca | agtgtgaaag  |     |     |     |     |     |     |     |     |     |     | 2935 |
| tgactttcac | gttccttca   | taaaaactata | ataatatccg  | acactttgat | agaaaaaaat  |     |     |     |     |     |     |     |     |     |     | 2995 |
| tcaaagctgt | gccttgagc   | ctatactata  | ctgtgtatgt  | gtggaaataa | aatgtattt   |     |     |     |     |     |     |     |     |     |     | 3055 |
| tacttttgg  | gaatttttt   | taggcatttt  | tctgtcagat  | ttttagtaat | tttgtgagg   |     |     |     |     |     |     |     |     |     |     | 3115 |
| tgttagagat | taatataaggt | tttctttctg  | tattataaaa  | tgcaccaagc | aattatgg    |     |     |     |     |     |     |     |     |     |     | 3175 |
| gacctattac | cctatgggta  | agaaataaaat | ggaaatatga  | catcgatgt  | ttcagcaact  |     |     |     |     |     |     |     |     |     |     | 3235 |
| gttctgtaaa | taaaaatctt  | gatcacacca  | ctcagtgt    | taattgtgtc | tacagctaaa  |     |     |     |     |     |     |     |     |     |     | 3295 |

atggaaatag ttttatctgt acagttgtgc aagatatgaa tggttcaca ctcataaa 3355  
aaatattgaa ccccaaaaaa aaaaaaaa 3382

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<212> PRT  
<213> Homo sapiens

<400> 4

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Ile Gln Ile Asp Ser Arg Cys Pro Leu Ser Arg Asn Ile Thr Glu Trp  
20 25 30

Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp  
35 40 45

Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys  
50 55 60

Lys Glu Val Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu  
65 70 75 80

Gly Thr Leu Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro  
85 90 95

Ala Ser Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg  
100 105 110

Thr His Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp  
115 120 125

Glu Val Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His  
130 135 140 145

Met Leu Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val  
145 150 155 160

Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr  
165 170 175

Val Leu Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe

180

185

190

Ala Lys Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro  
195 200 205

Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln  
210 215 220

Ile Leu Arg Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg  
225 230 235 240

Thr Val Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp  
245 250 255

Arg Asn Val Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met  
260 265 270

Glu Asp Ser Arg Asp Glu His Arg Lys Leu Ile Thr Gln Leu Tyr Gln  
275 280 285

Glu Phe Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile  
290 295 300

Glu Trp Leu Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala  
305 310 315 320

Lys Arg Arg Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met  
325 330 335

Trp Ser Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser  
340 345 350

Ala Pro Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp  
355 360 365

Tyr Val Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn  
370 375 380

Glu Leu Met Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu Val Arg  
385 390 395 400

Glu Glu Ile Ile Leu Thr Glu Ala Ala Pro Thr Pro Ser Pro Val  
405 410 415

Pro Ser Phe Ser Pro Ala Lys Ser Ala Thr Ser Val Glu Val Pro Pro  
420 425 430

Pro Ser Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly Leu Ser  
435 440 445

Thr Thr Gly Ala Met Gln Ala Tyr Thr Trp Ser Leu Thr Tyr Thr Val  
450 455 460

Thr Thr Ala Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys  
465 470 475 480

Met Arg Asn Thr His Val Pro Ser Ser Ser Val Thr His Arg Ile Pro  
485 490 495

Val Tyr Pro His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr  
500 505 510

Gly Ser Tyr Gly Asn Gln His Pro His Pro Met Gln Ser Gln Tyr Pro  
515 520 525

Ala Leu Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ala Pro  
530 535 540

Tyr His Arg Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr Ser Arg  
545 550 555 560

Met Glu Pro Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro Thr Pro  
565 570 575

Val Thr Pro Arg Trp Pro Glu Val Pro Ser Ala Asn Thr Cys Tyr Thr  
580 585 590

Asn Pro Ser Val His Ser Ala Arg Tyr Gly Asn Ser Ser Asp Met Tyr  
595 600 605

Thr Pro Leu Thr Thr Arg Arg Asn Ser Glu Tyr Glu His Met Gln His  
610 615 620

Phe Pro Gly Phe Ala Tyr Ile Asn Gly Glu Ala Ser Thr Gly Trp Ala  
625 630 635 640

Lys

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<211> 2842  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS  
<222> (307)..(2520)

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ccctctcgct ctctccttca gctcttagctt ctttccttcc ctgcgttctt cgcccttttt 120  
ctttccacta gttctttctt ttccccctttt atcctttgc cctctcaccc accgtctccc 180  
cctctctctc tcgctatccc ttcccttcctt atttcttccc tcccttcctc cctgggcata 240  
tctagcacag gggatccccca aatatcagga cttttgggggg gcgtctgtgc tgtccatggg 300  
aagagc atg cat tgt ggg tta ctg gag gaa ccc gac atg gat tcc aca 348  
Met His Cys Gly Leu Leu Glu Glu Pro Asp Met Asp Ser Thr  
1 5 10  
gag agc tgg att gaa aga tgt ctc aat gaa agc gag aat aaa cgc tat 396  
Glu Ser Trp Ile Glu Arg Cys Leu Asn Glu Ser Glu Asn Lys Arg Tyr  
15 20 25 30  
tcc agt cac aca tct ctg ggg aat gtg tct aat gat gaa aat gag gaa 444  
Ser Ser His Thr Ser Leu Gly Asn Val Ser Asn Asp Glu Asn Glu Glu  
35 40 45  
aaa gaa aat aac aga gca tcc aag ccc cac tcc acg ccg gcc acc ctg 492  
Lys Glu Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu  
50 55 60  
caa tgg ctg gag gaa aac tat gag att gct gag ggc gtc tgc atc ccc 540  
Gln Trp Leu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro  
65 70 75  
cgc agc gcc ctc tac atg cac tac ctg gat ttc tgt gag aag aac gac 588  
Arg Ser Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Asn Asp  
80 85 90  
act cag cct gtc aat gct gcc agc ttt ggg aag atc ata agg cag cag 636  
Thr Gln Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln  
95 100 105 110  
ttt cct cag cta acc acc aga aga ctc ggg acc ggg acc cga gga cag 684  
Phe Pro Gln Leu Thr Thr Arg Arg Leu Gly Thr Gly Thr Arg Gly Gln  
115 120 125

|   |     |      |     |
|---|-----|------|-----|
| tca aag tac cat tac tat ggc ata gcg gtg aag gag agc tcc cag tat |     | 732  |     |
| Ser Lys Tyr His Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr     |     |      |     |
| 130   | 135 | 140  |     |
|   |     |      |     |
| tat gat gtg atg tac tca aag aaa gga gct gcc tgg gtg agc gag acg |     | 780  |     |
| Tyr Asp Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr |     |      |     |
| 145   | 150 | 155  |     |
|   |     |      |     |
| ggc aag aga gaa gtc acc aag cag acg gtg gca tat tct ccc cgg tcc |     | 828  |     |
| Gly Lys Arg Glu Val Thr Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser |     |      |     |
| 160   | 165 | 170  |     |
|   |     |      |     |
| aag ctt ggg aca ttg ctg cca gac ttt cca aac gtc aaa gac cta aat |     | 876  |     |
| Lys Leu Gly Thr Leu Leu Pro Asp Phe Pro Asn Val Lys Asp Leu Asn |     |      |     |
| 175   | 180 | 185  | 190 |
|   |     |      |     |
| ctg cca gcc agt ctt cct gag gag aag gtg tct acc ttt att atg atg |     | 924  |     |
| Leu Pro Ala Ser Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met |     |      |     |
| 195   | 200 | 205  |     |
|   |     |      |     |
| tac aga aca cac tgt cag aga ata ctg gac act gta ata aga gcc aac |     | 972  |     |
| Tyr Arg Thr His Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn |     |      |     |
| 210   | 215 | 220  |     |
|   |     |      |     |
| ttt gat gag gtt caa agt ttc ctt ctg cac ttt tgg caa ggg atg ccg |     | 1020 |     |
| Phe Asp Glu Val Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro |     |      |     |
| 225   | 230 | 235  |     |
|   |     |      |     |
| ccc cac atg ctg ccc gtg cta ggc tcc tcc acg gtg gtg aac atc gtg |     | 1068 |     |
| Pro His Met Leu Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val |     |      |     |
| 240   | 245 | 250  |     |
|   |     |      |     |
| ggt gtg tgt gac tcc atc ctc tac aaa gcc atc tcc ggt gtg ttg atg |     | 1116 |     |
| Gly Val Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met |     |      |     |
| 255   | 260 | 265  | 270 |
|   |     |      |     |
| ccc acg gtg ctg cag gcg ttg ccg gac agc tta act cag gtg atc cga |     | 1164 |     |
| Pro Thr Val Leu Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg |     |      |     |
| 275   | 280 | 285  |     |
|   |     |      |     |
| aag ttt gcc aag cag ctg gac gag tgg ctg aaa gtg gct ctc cac gat |     | 1212 |     |
| Lys Phe Ala Lys Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp |     |      |     |
| 290   | 295 | 300  |     |
|   |     |      |     |
| ctc ccg gaa aac ctg aga aac atc aaa ttt gaa tta tca agg agg ttt |     | 1260 |     |
| Leu Pro Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe |     |      |     |
| 305   | 310 | 315  |     |
|   |     |      |     |
| tcc caa atc cta agg agg caa aca tcg ctg aac cat ctg tgc cag gca |     | 1308 |     |
| Ser Gln Ile Leu Arg Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala |     |      |     |
| 320   | 325 | 330  |     |
|   |     |      |     |
| tct cga acg gtg atc cac agt gca gac atc acg ttc cag atg ctg gag |     | 1356 |     |
| Ser Arg Thr Val Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu |     |      |     |
| 335   | 340 | 345  | 350 |

|  |     |      |     |
|--|-----|------|-----|
| gac tgg agg aat gtg gac ctg agt agc atc acc aag cag act ctg tat  |     | 1404 |     |
| Asp Trp Arg Asn Val Asp Leu Ser Ser Ile Thr Lys Gln Thr Leu Tyr  |     |      |     |
| 355  | 360 | 365  |     |
| acc atg gag gac tct cggt gat gag cac cgc aga ctc atc atc cag ttg |     | 1452 |     |
| Thr Met Glu Asp Ser Arg Asp Glu His Arg Arg Leu Ile Ile Gln Leu  |     |      |     |
| 370  | 375 | 380  |     |
| tac cag gag ttt gac cac ctg ctg gag gaa cag tcc ccc atc gag tct  |     | 1500 |     |
| Tyr Gln Glu Phe Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser  |     |      |     |
| 385  | 390 | 395  |     |
| tac ata gaa tgg ctg gat acc atg gta gac cga tgc gtt gta aag gtg  |     | 1548 |     |
| Tyr Ile Glu Trp Leu Asp Thr Met Val Asp Arg Cys Val Val Lys Val  |     |      |     |
| 400  | 405 | 410  |     |
| gct gcc aag aga caa ggg tct ctg aag aaa gta gcc caa cag ttc ctg  |     | 1596 |     |
| Ala Ala Lys Arg Gln Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu  |     |      |     |
| 415  | 420 | 425  | 430 |
| ctg atg tgg tct tgc ttt ggt acg agg gtg atc cgg gac atg acc ttg  |     | 1644 |     |
| Leu Met Trp Ser Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu  |     |      |     |
| 435  | 440 | 445  |     |
| cac agt gcc ccc agc ttc ggg tct ttt cac ctg att cac ctg atg ttc  |     | 1692 |     |
| His Ser Ala Pro Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe  |     |      |     |
| 450  | 455 | 460  |     |
| gac gac tac gtg ctc tac ttg cta gaa tct ctg cat tgt cag gag cgg  |     | 1740 |     |
| Asp Asp Tyr Val Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg  |     |      |     |
| 465  | 470 | 475  |     |
| gcc aac gag ctc atg cga gcc atg aaa gga gaa gga agc act gca gaa  |     | 1788 |     |
| Ala Asn Glu Leu Met Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu  |     |      |     |
| 480  | 485 | 490  |     |
| gcc cag gaa gag att atc ttg aca gag gct acc cca cca acc cct tca  |     | 1836 |     |
| Ala Gln Glu Ile Ile Leu Thr Glu Ala Thr Pro Pro Thr Pro Ser      |     |      |     |
| 495  | 500 | 505  | 510 |
| cct ggt cca tca ttt tct cca gca aag tct gcc aca tct gtg gag gtg  |     | 1884 |     |
| Pro Gly Pro Ser Phe Ser Pro Ala Lys Ser Ala Thr Ser Val Glu Val  |     |      |     |
| 515  | 520 | 525  |     |
| cca cct ccc tcc tcc cct gtc agc aac cca tcc ccc gaa tac act ggc  |     | 1932 |     |
| Pro Pro Pro Ser Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly  |     |      |     |
| 530  | 535 | 540  |     |
| ctt agc aca gca gga gcg atg cag tca tat acg tgg tcg cta aca tat  |     | 1980 |     |
| Leu Ser Thr Ala Gly Ala Met Gln Ser Tyr Thr Trp Ser Leu Thr Tyr  |     |      |     |
| 545  | 550 | 555  |     |
| aca gta aca acg gct gca ggg tca ccg gct gag aac tcc caa caa cta  |     | 2028 |     |
| Thr Val Thr Thr Ala Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu  |     |      |     |
| 560  | 565 | 570  |     |
| ccc tgt atg agg agc acc cat atg cct tct tcc tcc gtc aca cac agg  |     | 2076 |     |

<210> 6  
<211> 737  
<212> PRT

<213> Mus musculus

<400> 6

Met His Cys Gly Leu Leu Glu Glu Pro Asp Met Asp Ser Thr Glu Ser  
1 5 10 15

Trp Ile Glu Arg Cys Leu Asn Glu Ser Glu Asn Lys Arg Tyr Ser Ser  
20 25 30

His Thr Ser Leu Gly Asn Val Ser Asn Asp Glu Asn Glu Glu Lys Glu  
35 40 45

Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu Gln Trp  
50 55 60

Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro Arg Ser  
65 70 75 80

Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Asn Asp Thr Gln  
85 90 95

Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln Phe Pro  
100 105 110

Gln Leu Thr Thr Arg Arg Leu Gly Thr Gly Thr Arg Gly Gln Ser Lys  
115 120 125

Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp  
130 135 140

Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys  
145 150 155 160

Arg Glu Val Thr Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu  
165 170 175

Gly Thr Leu Leu Pro Asp Phe Pro Asn Val Lys Asp Leu Asn Leu Pro  
180 185 190

Ala Ser Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg  
195 200 205

Thr His Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp

210

215

220

Glu Val Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His  
225 230 235 240

Met Leu Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val  
245 250 255

Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr  
260 265 270

Val Leu Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe  
275 280 285

Ala Lys Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro  
290 295 300

Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln  
305 310 315 320

Ile Leu Arg Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg  
325 330 335

Thr Val Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp  
340 345 350

Arg Asn Val Asp Leu Ser Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met  
355 360 365

Glu Asp Ser Arg Asp Glu His Arg Arg Leu Ile Ile Gln Leu Tyr Gln  
370 375 380

Glu Phe Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile  
385 390 395 400

Glu Trp Leu Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala  
405 410 415

Lys Arg Gln Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met  
420 425 430

Trp Ser Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser  
435 440 445

Ala Pro Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp  
450 455 460

Tyr Val Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn  
465 470 475 480

Glu Leu Met Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu Ala Gln  
485 490 495

Glu Glu Ile Ile Leu Thr Glu Ala Thr Pro Pro Thr Pro Ser Pro Gly  
500 505 510

Pro Ser Phe Ser Pro Ala Lys Ser Ala Thr Ser Val Glu Val Pro Pro  
515 520 525

Pro Ser Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly Leu Ser  
530 535 540

Thr Ala Gly Ala Met Gln Ser Tyr Thr Trp Ser Leu Thr Tyr Thr Val  
545 550 555 560

Thr Thr Ala Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys  
565 570 575

Met Arg Ser Thr His Met Pro Ser Ser Ser Val Thr His Arg Ile Pro  
580 585 590

Val Tyr Ser His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr  
595 600 605

Gly Ser Tyr Gly Asn Gln His Pro His Pro Leu Gln Asn Gln Tyr Pro  
610 615 620

Ala Leu Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ser Pro  
625 630 635 640

Tyr His Arg Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr Ser Arg  
645 650 655

Met Glu Pro Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro Thr Pro  
660 665 670

Val Thr Pro Arg Trp Pro Glu Val Pro Thr Ala Asn Ala Cys Tyr Thr  
675 680 685

Ser Pro Ser Val His Ser Thr Arg Tyr Gly Asn Ser Ser Asp Met Tyr  
690 695 700

Thr Pro Leu Thr Thr Arg Arg Asn Ser Glu Tyr Glu His Met Gln His  
705 710 715 720

Phe Pro Gly Phe Ala Tyr Ile Asn Gly Glu Ala Ser Thr Gly Trp Ala  
725 730 735

Lys

<210> 7  
<211> 3603  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (68)..(2275)

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gaagagc atg cat tgt ggg tta ctg gag gaa ccc gac atg gat tcc aca 109  
Met His Cys Gly Leu Leu Glu Glu Pro Asp Met Asp Ser Thr  
1 5 10

gag agc tgg att gaa aga tgt ctc aac gaa agt gaa aac aaa cgt tat 157  
Glu Ser Trp Ile Glu Arg Cys Leu Asn Glu Ser Glu Asn Lys Arg Tyr  
15 . 20 25 30

tcc agc cac aca tct ctg ggg aat gtt tct aat gat gaa aat gag gaa 205  
Ser Ser His Thr Ser Leu Gly Asn Val Ser Asn Asp Glu Asn Glu Glu  
35 40 45

aaa gaa aat aat aga gca tcc aag ccc cac tcc act cct gct act ctg 253  
Lys Glu Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu  
50 55 60

caa tgg ctg gag gag aac tat gag att gca gag ggg gtc tgc atc cct 301  
Gln Trp Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro  
65 70 75

cgc agt gcc ctc tat atg cat tac ctg gat ttc tgc gag aag aat gat 349  
Arg Ser Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Asn Asp  
80 85 90

|   |  |      |
|---|--|------|
| acc caa cct gtc aat gct gcc agc ttt gga aag atc ata agg cag cag |  | 397  |
| Thr Gln Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln |  |      |
| 95 100 105 110  |  |      |
| ttt cct cag tta acc acc aga aga ctc ggg acc cga gga cag tca aag |  | 445  |
| Phe Pro Gln Leu Thr Thr Arg Arg Leu Gly Thr Arg Gly Gln Ser Lys |  |      |
| 115 120 125   |  |      |
| tac cat tac tat ggc att gca gtg aaa gaa agc tcc caa tat tat gat |  | 493  |
| Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp |  |      |
| 130 135 140   |  |      |
| gtg atg tat tcc aag aaa gga gct gcc tgg gtg agt gag acg ggc aag |  | 541  |
| Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys |  |      |
| 145 150 155   |  |      |
| aaa gaa gtg agc aaa cag aca gtg gca tat tca ccc cggttccaaa ctc  |  | 589  |
| Lys Glu Val Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu |  |      |
| 160 165 170   |  |      |
| gga aca ctg ctg cca gaa ttt ccc aat gtc aaa gat cta aat ctg cca |  | 637  |
| Gly Thr Leu Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro |  |      |
| 175 180 185 190   |  |      |
| gcc agc ctg cct gag gag aag gtt tct acc ttt att atg atg tac aga |  | 685  |
| Ala Ser Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg |  |      |
| 195 200 205   |  |      |
| aca cac tgt cag aga ata ctg gac act gta ata aga gcc aac ttt gat |  | 733  |
| Thr His Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp |  |      |
| 210 215 220   |  |      |
| gag gtt caa agt ttc ctt ctg cac ttt tgg caa gga atg ccgttcccac  |  | 781  |
| Glu Val Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His |  |      |
| 225 230 235   |  |      |
| atg ctg cct gtg ctg ggc tcc tcc acg gtg gtg aac att gtc ggc gtg |  | 829  |
| Met Leu Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val |  |      |
| 240 245 250   |  |      |
| tgt gac tcc atc ctc tac aaa gct atc tcc ggg gtg ctg atg ccc act |  | 877  |
| Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr |  |      |
| 255 260 265 270   |  |      |
| gtg ctg cag gca tta cct gac agc tta act cag gtg att cga aag ttt |  | 925  |
| Val Leu Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe |  |      |
| 275 280 285   |  |      |
| gcc aag caa ctg gat gag tgg cta aaa gtg gct ctc cac gac ctc cca |  | 973  |
| Ala Lys Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro |  |      |
| 290 295 300   |  |      |
| gaa aac ttg cga aac atc aag ttc gaa ttg tcg aga agg ttc tcc caa |  | 1021 |
| Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln |  |      |
| 305 310 315   |  |      |

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| att ctg aga cg  | caa aca tca cta aat cat ctc tgc cag gca tct cga | 1069 |     |
| Ile Leu Arg Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg |   |      |     |
| 320   | 325   | 330  |     |
| aca gtg atc cac agt gca gac atc acg ttc caa atg ctg gaa gac tgg |   | 1117 |     |
| Thr Val Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp |   |      |     |
| 335   | 340   | 345  | 350 |
| agg aac gtg gac ctg aac agc atc acc aag caa acc ctt tac acc atg |   | 1165 |     |
| Arg Asn Val Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met |   |      |     |
| 355   | 360   | 365  |     |
| gaa gac tct cgc gat gag cac cgg aaa ctc atc acc caa tta tat cag |   | 1213 |     |
| Glu Asp Ser Arg Asp Glu His Arg Lys Leu Ile Thr Gln Leu Tyr Gln |   |      |     |
| 370   | 375   | 380  |     |
| gag ttt gac cat ctc ttg gag gag cag tct ccc atc gag tcc tac att |   | 1261 |     |
| Glu Phe Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile |   |      |     |
| 385   | 390   | 395  |     |
| gag tgg ctg gat acc atg gtt gac cgc tgt gtt gtg aag gtg gct gcc |   | 1309 |     |
| Glu Trp Leu Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala |   |      |     |
| 400   | 405   | 410  |     |
| aag aga caa ggg tcc ttg aag aaa gtg gcc cag cag ttc ctc ttg atg |   | 1357 |     |
| Lys Arg Gln Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met |   |      |     |
| 415   | 420   | 425  | 430 |
| tgg tcc tgt ttc ggc aca agg gtg atc cgg gac atg acc ttg cac agc |   | 1405 |     |
| Trp Ser Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser |   |      |     |
| 435   | 440   | 445  |     |
| gcc ccc agc ttc ggg tct ttt cac cta att cac tta atg ttt gat gac |   | 1453 |     |
| Ala Pro Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp |   |      |     |
| 450   | 455   | 460  |     |
| tac gtg ctc tac ctg tta gaa tct ctg cac tgt cag gag cgg gcc aat |   | 1501 |     |
| Tyr Val Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn |   |      |     |
| 465   | 470   | 475  |     |
| gag ctc atg cga gcc atg aag gga gaa gga agc act gca gaa gtc cga |   | 1549 |     |
| Glu Leu Met Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu Val Arg |   |      |     |
| 480   | 485   | 490  |     |
| gaa gag atc atc ttg aca gag gct gcc gca cca acc cct tca cca gtg |   | 1597 |     |
| Glu Glu Ile Ile Leu Thr Glu Ala Ala Pro Thr Pro Ser Pro Val     |   |      |     |
| 495   | 500   | 505  | 510 |
| cca tcg ttt tct cca gca aaa tct gcc aca tct atg gaa gtg cca cct |   | 1645 |     |
| Pro Ser Phe Ser Pro Ala Lys Ser Ala Thr Ser Met Glu Val Pro Pro |   |      |     |
| 515   | 520   | 525  |     |
| ccc tct tcc cct gtt agc aat cct tcc cct gag tac act ggc ctc agc |   | 1693 |     |
| Pro Ser Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly Leu Ser |   |      |     |
| 530   | 535   | 540  |     |
| act aca gga gca atg cag tct tac acg tgg tct cta aca tac aca gtg |   | 1741 |     |

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|-------------|------------|------------|-------------|------|---------|---------|---------|-------|---------|------|------|-----|-----|-----|-----|------|
| Thr         | Thr        | Gly        | Ala         | Met  | Gln     | Ser     | Tyr     | Thr   | Trp     | Ser  | Leu  | Thr | Tyr | Thr | Val |      |
| 545         |            |            |             |      | 550     |         |         |       | 555     |      |      |     |     |     |     |      |
| acg         | acg        | gct        | gct         | ggg  | tcc     | cca     | gct     | gag   | aac     | tcc  | caa  | cag | ctg | ccc | tgt | 1789 |
| Thr         | Thr        | Ala        | Ala         | Gly  | Ser     | Pro     | Ala     | Glu   | Asn     | Ser  | Gln  | Gln | Leu | Pro | Cys |      |
| 560         |            |            |             |      | 565     |         |         |       | 570     |      |      |     |     |     |     |      |
| atg         | agg        | aac        | act         | cat  | gtg     | cct     | tct     | tcc   | gtc     | aca  | cac  | agg | ata | cca |     | 1837 |
| Met         | Arg        | Asn        | Thr         | His  | Val     | Pro     | Ser     | Ser   | Ser     | Val  | Thr  | His | Arg | Ile | Pro |      |
| 575         |            |            |             |      | 580     |         |         |       | 585     |      |      |     | 590 |     |     |      |
| gtt         | tat        | ccc        | cac         | aga  | gag     | gaa     | cat     | gga   | tac     | acg  | gga  | agc | tat | aac | tat | 1885 |
| Val         | Tyr        | Pro        | His         | Arg  | Glu     | Glu     | His     | Gly   | Tyr     | Thr  | Gly  | Ser | Tyr | Asn | Tyr |      |
|             |            |            |             |      | 595     |         |         | 600   |         |      |      | 605 |     |     |     |      |
| ggg         | agc        | tat        | ggc         | aac  | cag     | cat     | cct     | cac   | ccc     | atg  | cag  | agc | cag | tat | ccg | 1933 |
| Gly         | Ser        | Tyr        | Gly         | Asn  | Gln     | His     | Pro     | His   | Pro     | Met  | Gln  | Ser | Gln | Tyr | Pro |      |
|             |            |            |             |      | 610     |         |         | 615   |         |      |      | 620 |     |     |     |      |
| gcc         | ctc        | cct        | cat         | gac  | aca     | qct     | atc     | tct   | ggg     | cca  | ctc  | cac | tat | gcc | cct | 1981 |
| Ala         | Leu        | Pro        | His         | Asp  | Thr     | Ala     | Ile     | Ser   | Gly     | Pro  | Leu  | His | Tyr | Ala | Pro |      |
|             |            |            |             |      | 625     |         |         | 630   |         |      |      | 635 |     |     |     |      |
| tac         | cac        | agg        | agc         | tct  | gca     | cag     | tac     | cct   | ttt     | aat  | agc  | ccc | act | tcc | cgg | 2029 |
| Tyr         | His        | Arg        | Ser         | Ser  | Ala     | Gln     | Tyr     | Pro   | Phe     | Asn  | Ser  | Pro | Thr | Ser | Arg |      |
|             |            |            |             |      | 640     |         |         | 645   |         |      |      | 650 |     |     |     |      |
| atg         | gaa        | cct        | tgt         | ttg  | atg     | agc     | agt     | act   | ccc     | aga  | ctg  | cat | cct | acc | cca | 2077 |
| Met         | Glu        | Pro        | Cys         | Leu  | Met     | Ser     | Ser     | Thr   | Pro     | Arg  | Leu  | His | Pro | Thr | Pro |      |
|             |            |            |             |      | 655     |         |         | 660   |         |      | 665  |     |     | 670 |     |      |
| gtc         | act        | ccc        | cgc         | tgg  | cca     | gag     | gtg     | ccc   | tca     | gcc  | aac  | acg | tgc | tac | aca | 2125 |
| Val         | Thr        | Pro        | Arg         | Trp  | Pro     | Glu     | Val     | Pro   | Ser     | Ala  | Asn  | Thr | Cys | Tyr | Thr |      |
|             |            |            |             |      | 675     |         |         | 680   |         |      | 685  |     |     |     |     |      |
| agc         | ccg        | tct        | gtg         | cat  | tct     | gcg     | agg     | tac   | gga     | aac  | tct  | agt | gac | atg | tat | 2173 |
| Ser         | Pro        | Ser        | Val         | His  | Ser     | Ala     | Arg     | Tyr   | Gly     | Asn  | Ser  | Ser | Asp | Met | Tyr |      |
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| aca         | cct        | ctg        | aca         | acg  | cgc     | agg     | aat     | tct   | gaa     | tat  | gag  | cac | atg | caa | cac | 2221 |
| Thr         | Pro        | Leu        | Thr         | Arg  | Arg     | Asn     | Ser     | Glu   | Tyr     | Glu  | His  | Met | Gln | His |     |      |
|             |            |            |             |      | 705     |         |         | 710   |         |      | 715  |     |     |     |     |      |
| ttt         | cct        | ggc        | ttt         | gct  | tac     | atc     | aac     | gga   | gag     | gcc  | tct  | aca | gga | tgg | gct | 2269 |
| Phe         | Pro        | Gly        | Phe         | Ala  | Tyr     | Ile     | Asn     | Gly   | Glu     | Ala  | Ser  | Thr | Gly | Trp | Ala |      |
|             |            |            |             |      | 720     |         |         | 725   |         |      | 730  |     |     |     |     |      |
| aaa         | tga        | ctg        | ctatcat     | agg  | cat     | ccat    | at      | taa   | tatt    | aata | aata | ata | ata | ata | ata | 2325 |
| Lys         |            |            |             |      |         |         |         |       |         |      |      |     |     |     |     |      |
| 735         |            |            |             |      |         |         |         |       |         |      |      |     |     |     |     |      |
| ataataaacc  | caacacccat | cccccagaag | acttttatctc | tata | cattgt  | aactcat | ggg     |       |         |      |      |     |     |     |     | 2385 |
| ctatttcctaa | gtgcccattt | tcc        | taatgaa     | cat  | gaggatg | ggat    | caatgt  | gggat | gaata   |      |      |     |     |     |     | 2445 |
| aacttttagtt | cagaaacagg | acttactaaa | agt         | cagt | gggg    | act     | gggtttc | tgt   | agccaag |      |      |     |     |     |     | 2505 |

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| agctctgctg tggtaacttt gtgaaactgg atggaacaaa cttaactta ccaagcacca    | 3165 |
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Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu Gln Trp  
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Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro Arg Ser  
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Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln Phe Pro  
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Gln Leu Thr Thr Arg Arg Leu Gly Thr Arg Gly Gln Ser Lys Tyr His  
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Val Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu Gly Thr  
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Leu Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro Ala Ser  
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Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp Glu Val  
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Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val Cys Asp  
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Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr Val Leu  
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Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln Ile Leu  
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Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp Arg Asn  
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Val Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met Glu Asp  
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Ser Arg Asp Glu His Arg Lys Leu Ile Thr Gln Leu Tyr Gln Glu Phe  
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Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile Glu Trp  
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Leu Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala Lys Arg  
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Gln Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met Trp Ser  
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Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser Ala Pro  
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Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp Tyr Val  
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Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn Glu Leu  
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Ile Ile Leu Thr Glu Ala Ala Pro Thr Pro Ser Pro Val Pro Ser

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505

510

Phe Ser Pro Ala Lys Ser Ala Thr Ser Met Glu Val Pro Pro Pro Ser  
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Asn Thr His Val Pro Ser Ser Val Thr His Arg Ile Pro Val Tyr  
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Pro His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr Gly Ser  
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Tyr Gly Asn Gln His Pro His Pro Met Gln Ser Gln Tyr Pro Ala Leu  
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Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ala Pro Tyr His  
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Ser Val His Ser Ala Arg Tyr Gly Asn Ser Ser Asp Met Tyr Thr Pro  
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Ser Glu Ser Lys Arg Phe Ser Ser His Ser Ser Ile Gly Asn Ile Ser  
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Ser Thr Pro Ala Thr Leu Gln Trp Leu Glu Glu Asn Tyr Glu Ile Ala  
60 65 70  
  
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Glu Gly Val Cys Ile Pro Arg Ile Ala Leu Tyr Met His Tyr Leu Asp  
75 80 85  
  
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Lys Ile Ile Arg Gln Gln Phe Pro Gln Leu Thr Thr Arg Arg Leu Gly  
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Thr Arg Gly Gln Ser Lys Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu  
125 130 135  
  
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Ser Ser Gln Tyr Tyr Asp Val Met Tyr Ser Lys Lys Gly Ala Ala Trp  
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Val Asn Glu Thr Gly Lys Lys Glu Val Thr Lys Gln Thr Val Ala Tyr

| 155   | 160 | 165 |      |
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| tca ccg cgc tcc aag ctg ggc act ctc ctg cca gac ttt cca aat gtc<br>Ser Pro Arg Ser Lys Leu Gly Thr Leu Leu Pro Asp Phe Pro Asn Val<br>170 175 180     |     |     | 640  |
| aaa gac cta aat ctg ccc gcc agt ctg cca gag gag aag gtc tcg acc<br>Lys Asp Leu Asn Leu Pro Ala Ser Leu Pro Glu Glu Lys Val Ser Thr<br>185 190 195 200 |     |     | 688  |
| ttt att atg atg tac aga act cac tgc cag agg ata ctg gat act gtc<br>Phe Ile Met Met Tyr Arg Thr His Cys Gln Arg Ile Leu Asp Thr Val<br>205 210 215     |     |     | 736  |
| ata cgc gcc aac ttc gat gag gtt cag agc ttc ctg ttg cac ttt tgg<br>Ile Arg Ala Asn Phe Asp Glu Val Gln Ser Phe Leu Leu His Phe Trp<br>220 225 230     |     |     | 784  |
| cag ggc atg ccg ccc cac atg ctc cct gtc ctg ggc tct tct aca gtg<br>Gln Gly Met Pro Pro His Met Leu Pro Val Leu Gly Ser Ser Thr Val<br>235 240 245     |     |     | 832  |
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| ggc gtc ctc atg ccc acc gtc cta caa gct ctg cct gac agc ctc act<br>Gly Val Leu Met Pro Thr Val Leu Gln Ala Leu Pro Asp Ser Leu Thr<br>265 270 275 280 |     |     | 928  |
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| cag atg ctc gag gac tgg agg aac gta gac ctc aac agc atc act aaa<br>Gln Met Leu Glu Asp Trp Arg Asn Val Asp Leu Asn Ser Ile Thr Lys<br>345 350 355 360 |     |     | 1168 |
| caa act ctt tat act atg gaa gac tcc aga gaa gac cag agg aga ctc<br>Gln Thr Leu Tyr Thr Met Glu Asp Ser Arg Glu Asp Gln Arg Arg Leu<br>365 370 375     |     |     | 1216 |
| atc atc caa ttg tat caa gaa ttt gac aga ctg cta gag gac cag tct<br>Ile Ile Gln Leu Tyr Gln Glu Phe Asp Arg Leu Leu Glu Asp Gln Ser<br>380 385 390     |     |     | 1264 |

|  |      |
|--|------|
| cca att gaa gcc tac atc gag tgg ctg gac tct atg gtg gag aga tgt<br>Pro Ile Glu Ala Tyr Ile Glu Trp Leu Asp Ser Met Val Glu Arg Cys<br>395                          400                          405                              | 1312 |
| gtt gtg agg gtg gcg ggg aag aga ccc gga tct ctg aag agg gta gct<br>Val Val Arg Val Ala Gly Lys Arg Pro Gly Ser Leu Lys Arg Val Ala<br>410                          415                          420                              | 1360 |
| cag cag ttc ctg ctc atg tgg tcg tgt ttt ggg aca aga gtt atc cg<br>Gln Gln Phe Leu Leu Met Trp Ser Cys Phe Gly Thr Arg Val Ile Arg<br>425                          430                          435                          440  | 1408 |
| gat atg acg ctg cat agt gca cca agc ttt ggc tcg ttc cat ctg att<br>Asp Met Thr Leu His Ser Ala Pro Ser Phe Gly Ser Phe His Leu Ile<br>445                          450                          455                              | 1456 |
| cac ctc atg ttt gat gac tat gta ctt tac ctg ctt gaa tct ctg cac<br>His Leu Met Phe Asp Asp Tyr Val Leu Tyr Leu Leu Glu Ser Leu His<br>460                          465                          470                              | 1504 |
| tgc caa gag aga gcc aat gaa ctg atg agg gcg atg aaa gga gag ggc<br>Cys Gln Glu Arg Ala Asn Glu Leu Met Arg Ala Met Lys Gly Glu Gly<br>475                          480                          485                              | 1552 |
| gca cca gca gat act gga gaa gag ctg atg ctg atg agc tcc act cca<br>Ala Pro Ala Asp Thr Gly Glu Leu Met Leu Met Ser Ser Thr Pro<br>490                          495                          500                                  | 1600 |
| aca tct acg tca cct gga ccc tac tct cct gcc aaa tct gtt cac tcg<br>Thr Ser Thr Ser Pro Gly Pro Tyr Ser Pro Ala Lys Ser Val His Ser<br>505                          510                          515                          520 | 1648 |
| gtg ggc gta ccc gca gta ggg tcc ccc aat tca gcc cag tct ccg gag<br>Val Gly Val Pro Ala Val Gly Ser Pro Asn Ser Ala Gln Ser Pro Glu<br>525                          530                          535                              | 1696 |
| tac acc agc ata tcg gcc aca aca gga gct gtt cag tca tat acc tgg<br>Tyr Thr Ser Ile Ser Ala Thr Thr Gly Ala Val Gln Ser Tyr Thr Trp<br>540                          545                          550                              | 1744 |
| tcc ctt aca tac aca gtg aca act tca ggc ggc agc cca acc gag ccc<br>Ser Leu Thr Tyr Thr Val Thr Ser Gly Gly Ser Pro Thr Glu Pro<br>555                          560                          565                                  | 1792 |
| gga tcc cag ctg tcc tgc atg aga ggc gga cct gcg tta cac gga tca<br>Gly Ser Gln Leu Ser Cys Met Arg Gly Gly Pro Ala Leu His Gly Ser<br>570                          575                          580                              | 1840 |
| tcc tcc gca cac cgg atg cca gtt tac cca cat cgg gat gag cac ggg<br>Ser Ser Ala His Arg Met Pro Val Tyr Pro His Arg Asp Glu His Gly<br>585                          590                          595                          600 | 1888 |
| tac act ggc agc tat aat tac agc agc tac gca aac cag cac cat cat<br>Tyr Thr Gly Ser Tyr Asn Tyr Ser Ser Tyr Ala Asn Gln His His His<br>605                          610                          615                              | 1936 |

|   |      |
|---|------|
| gcc att cag agt caa tac tcc agt tta acc cat gaa gca ggg ctg ccc<br>Ala Ile Gln Ser Gln Tyr Ser Ser Leu Thr His Glu Ala Gly Leu Pro<br>620 625 630     | 1984 |
| act cct ttg cat tat tcc tca tac cac cgc acc tcc gca cag tat ccg<br>Thr Pro Leu His Tyr Ser Ser Tyr His Arg Thr Ser Ala Gln Tyr Pro<br>635 640 645     | 2032 |
| ctc aac agt caa atg tcc aga atg gag tcg tgt cta atg agc ggc tct<br>Leu Asn Ser Gln Met Ser Arg Met Glu Ser Cys Leu Met Ser 'Gly Ser<br>650 655 660    | 2080 |
| cct ctc cta cac tcc agt cca gtg acc cct cga tgg ccc gat gtg ccc<br>Pro Leu Leu His Ser Ser Pro Val Thr Pro Arg Trp Pro Asp Val Pro<br>665 670 675 680 | 2128 |
| tct gcc aac agc tgt tac tcc agt ccc acc gtc cac gca tcc cgc tac<br>Ser Ala Asn Ser Cys Tyr Ser Ser Pro Thr Val His Ala Ser Arg Tyr<br>685 690 695     | 2176 |
| tcc acc gga gac atg tac tcg ccc ctt gcc cca cgc agg aac tct gaa<br>Ser Thr Gly Asp Met Tyr Ser Pro Leu Ala Pro Arg Arg Asn Ser Glu<br>700 705 710     | 2224 |
| tac gag cac gca caa cac ttt cca gga ttc gcc tat att aac ggg gag<br>Tyr Glu His Ala Gln His Phe Pro Gly Phe Ala Tyr Ile Asn Gly Glu<br>715 720 725     | 2272 |
| gcc acg acc gga tgg gca aaa tga taaaccagcg gtggccata tttaacacta<br>Ala Thr Thr Gly Trp Ala Lys<br>730 735   | 2326 |
| ttacagagaa tgtatctgag aatggcaacg gtgttttat tggtgtggc agtgtttaca   | 2386 |
| gtgcaaagct gccaatgaaa gttgattcgc aatcattgtg agagaaaacg ggacatccta   | 2446 |
| aaaaaacgac tgaatgattt aagttattta taaagtctaa atttggtata ctttaatta  | 2506 |
| aataatacatt ctatgcacaa attaacacag aacgaacaga acatgtaaa ttgcccgtta   | 2566 |
| aataactttc tcccatatta gaaagaaaat gcttaatttg gcttaatgct ttaaagaagt   | 2626 |
| gatgtgtata tacagttgaa gtcagaatta ttagtcgccc tgtttatttt ttcctccaaac  | 2686 |
| ttctgtttaa cggagagaag aatttttaa cacatttcta aatataatag tttaataac   | 2746 |
| tcatttaaaa taactgattt attttatctt tgccatgaac acagtgcata atatttgact   | 2806 |
| agatattttt aaagacactt ctatacagct taaagtgaca tttaaaggct taacttagtt   | 2866 |
| aatttaggtta actaggcagg atagggcaat taggccagtt atttataac gatggtttgt   | 2926 |
| tctgttagact atcggaaaaaa ataatttga ccttaaaatg gtgtttaaaa aattaaaaac  | 2986 |
| ttcttttattt ctagccg   | 3003 |

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<212> PRT  
<213> Danio rerio

<400> 10

Met Leu Cys Gly Leu Leu Glu Glu Pro Asp Met Asp Ser Thr Glu Ser  
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Trp Ile Glu Arg Cys Leu Asn Glu Ser Glu Ser Lys Arg Phe Ser Ser  
20 25 30

His Ser Ser Ile Gly Asn Ile Ser Asn Asp Glu Asn Glu Glu Lys Glu  
35 40 45

Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu Gln Trp  
50 55 60

Leu Glu Glu Asn Tyr Glu Ile Ala Glu Gly Val Cys Ile Pro Arg Ile  
65 70 75 80

Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Leu Asp Ser Gln  
85 90 95

Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln Phe Pro  
100 105 110

Gln Leu Thr Thr Arg Arg Leu Gly Thr Arg Gly Gln Ser Lys Tyr His  
115 120 125

Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp Val Met  
130 135 140

Tyr Ser Lys Lys Gly Ala Ala Trp Val Asn Glu Thr Gly Lys Lys Glu  
145 150 155 160

Val Thr Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu Gly Thr  
165 170 175

Leu Leu Pro Asp Phe Pro Asn Val Lys Asp Leu Asn Leu Pro Ala Ser  
180 185 190

Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg Thr His  
195 200 205

Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp Glu Val  
210 215 220

Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His Met Leu  
225 230 235 240

Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val Cys Asp  
245 250 255

Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr Val Leu  
260 265 270

Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe Ala Lys  
275 280 285

Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro Glu Asn  
290 295 300

Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln Ile Leu  
305 310 315 320

Lys Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg Thr Val  
325 330 335

Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp Arg Asn  
340 345 350

Val Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met Glu Asp  
355 360 365

Ser Arg Glu Asp Gln Arg Arg Leu Ile Ile Gln Leu Tyr Gln Glu Phe  
370 375 380

Asp Arg Leu Leu Glu Asp Gln Ser Pro Ile Glu Ala Tyr Ile Glu Trp  
385 390 395 400

Leu Asp Ser Met Val Glu Arg Cys Val Val Arg Val Ala Gly Lys Arg  
405 410 415

Pro Gly Ser Leu Lys Arg Val Ala Gln Gln Phe Leu Leu Met Trp Ser  
420 425 430

Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser Ala Pro  
435 440 445

Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp Tyr Val  
450 455 460

Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn Glu Leu  
465 470 475 480

Met Arg Ala Met Lys Gly Glu Gly Ala Pro Ala Asp Thr Gly Glu Glu  
485 490 495

Leu Met Leu Met Ser Ser Thr Pro Thr Ser Thr Ser Pro Gly Pro Tyr  
500 505 510

Ser Pro Ala Lys Ser Val His Ser Val Gly Val Pro Ala Val Gly Ser  
515 520 525

Pro Asn Ser Ala Gln Ser Pro Glu Tyr Thr Ser Ile Ser Ala Thr Thr  
530 535 540

Gly Ala Val Gln Ser Tyr Thr Trp Ser Leu Thr Tyr Thr Val Thr Thr  
545 550 555 560

Ser Gly Gly Ser Pro Thr Glu Pro Gly Ser Gln Leu Ser Cys Met Arg  
565 570 575

Gly Gly Pro Ala Leu His Gly Ser Ser Ser Ala His Arg Met Pro Val  
580 585 590

Tyr Pro His Arg Asp Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr Ser  
595 600 605

Ser Tyr Ala Asn Gln His His Ala Ile Gln Ser Gln Tyr Ser Ser  
610 615 620

Leu Thr His Glu Ala Gly Leu Pro Thr Pro Leu His Tyr Ser Ser Tyr  
625 630 635 640

His Arg Thr Ser Ala Gln Tyr Pro Leu Asn Ser Gln Met Ser Arg Met  
645 650 655

Glu Ser Cys Leu Met Ser Gly Ser Pro Leu Leu His Ser Ser Pro Val  
660 665 670

Thr Pro Arg Trp Pro Asp Val Pro Ser Ala Asn Ser Cys Tyr Ser Ser  
675 680 685

Pro Thr Val His Ala Ser Arg Tyr Ser Thr Gly Asp Met Tyr Ser Pro  
690 695 700

Leu Ala Pro Arg Arg Asn Ser Glu Tyr Glu His Ala Gln His Phe Pro  
705 710 715 720

Gly Phe Ala Tyr Ile Asn Gly Glu Ala Thr Thr Gly Trp Ala Lys  
725 730 735

<210> 11  
<211> 4001  
<212> DNA  
<213> Homo sapiens

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cattccaggg gattcagcag ccacccaggt ctgcacaagc agtgccaact ccacacctt 180  
gtgggtctgc ctggctgtca ttgccactgg gctactggga agtttaagg gcccttcaa 240  
cccttctctc ttgctccaa gtctccctc ctcatgtcac atcctggtac caatagctac 300  
tcattgctca agtcagaaac ctggaatcc cttctccctc cccatccctg gccacaacta 360  
atcaacatca aggctggaa tacagcttc ttggtatctc ctgaaccctg ccccaactgc 420  
catgtacctg tgtcaggtca tcctgatccc tccctccac cccctcctgc aaccaacccc 480  
catctggcca ccacacagtt tgagatctct tcacatttt tgatctttc aaaatgtaga 540  
tttagtccta tatgcaccaa acccttccag ggtacatttc ttggcatggc cctagttac 600  
ctccccatga aatggcctgt taatcctctc ttccctcttt gggttccgtg tgcagccagg 660  
ccaggctcca gtcccaaaca cactccacag gttctccctc tgcctgtgc ctctgtctgt 720  
aacaccctca acccccttgt ctggctaatt cagctcctgg gtcaccactt cctccaggag 780  
gcctgccttg acaccagcct cccaggatca gtcacattgc cctcttttgc ctctcacagc 840  
acccacaatt tccccatcac cccctccctg cccctgtgt atgttctatt gagattcaa 900  
gcctctgcag gataggaatt ggataattca ttactgtgtc cacagtgtct gtcaagggca 960

|            |             |             |             |             |             |      |
|------------|-------------|-------------|-------------|-------------|-------------|------|
| agagagccac | acagaacccc  | agttagttctc | ctaaaagtgg  | agacgacaat  | aatatgtatt  | 1020 |
| agttgttgtt | tgaggatgaa  | atgaactaat  | gcatggaaga  | cgcctgaacc  | cgtggaaaca  | 1080 |
| cataatgaat | acattaatag  | taaatggtag  | ctattactat  | ttatgtatgtt | gacagcatta  | 1140 |
| aatctaagca | aacatttat   | tgaagtatga  | aatacattcc  | aaaaaatgcg  | caaaatcaca  | 1200 |
| agtgtcacag | tcagtgaatt  | gtcacaaatg  | acacccttgt  | gactagcccc  | tggataccat  | 1260 |
| tacttttaag | ctcaaatgtc  | agcttctcag  | agaggccctc  | ccttgacttc  | gtctcccacc  | 1320 |
| tcttaattct | atgttgtata  | tattatctgt  | ttcccccac   | tcccatgtaa  | gcttcaggag  | 1380 |
| agcaagattt | ttttttttt   | tttttggtc   | tatTTTgttc  | actgatgtag  | cctccgcttc  | 1440 |
| ctagaatagt | tctggacaca  | tagtagatgc  | acaataaaaa  | tttgccaagg  | aacgaatgag  | 1500 |
| cgattattat | tttcatttct  | ttaagctccc  | aggcgctgca  | gcatggtcat  | gcccgagaac  | 1560 |
| tcgtgccatc | ccaggtgaag  | cagcgctggg  | ccgggaccag  | ccgcacctgg  | cccggtctg   | 1620 |
| agctgtgctg | ggctggctcc  | gggttcttcc  | gcctcaactcc | tggcctgtga  | gcccggctca  | 1680 |
| cctcacccta | cccacctcca  | ctctgcgtgc  | aaaaattata  | ataataatag  | caacaataat  | 1740 |
| agtctcatcc | gccctggaga  | ccacccgtgc  | ccccgtggca  | tccctcaagg  | actctccggg  | 1800 |
| cggtggcagc | cggccacccct | ggggacgcgc  | tccttgctgc  | caccggaacg  | cccctggcca  | 1860 |
| ggctccatct | acgcgctgtc  | agaccctccc  | gccgtctgaa  | gaaggcttt   | actcttcagc  | 1920 |
| ctattccagt | ggcagagaag  | ctaaggctac  | aaaggcgaac  | gcgaacagtc  | agatctgact  | 1980 |
| tcgaattccg | ctgtcattgc  | tgccaggcgc  | accacgagga  | cgcgcggta   | ccgcccaccat | 2040 |
| ggcattcggc | tgccaaaggt  | ttccatcgac  | cttttccca   | tcaccagcat  | cgcagcggga  | 2100 |
| aagaatgtgc | ctggcgccct  | tctggcact   | gggcatgggg  | tggtaacaa   | agtcctccag  | 2160 |
| aaataaaccg | gtaatgagc   | ccggcagcgg  | ccggggcagg  | aagggacctt  | cgcagagagt  | 2220 |
| ggtcaggcac | agcccctccg  | aggaggcgcac | gctcagctga  | gaccagggtg  | acgcaaaggt  | 2280 |
| gtcggccggt | taggcacctg  | tgaggaagga  | ggagccggca  | gagtgc当地    | tagagggAAC  | 2340 |
| agcaaatgcc | cggctccctt  | tataaccact  | gcttcagttt  | tcttccccca  | aagcttgaga  | 2400 |
| ggggcaact  | ttgctacatt  | tcacagacga  | ggaagctgag  | gcccagaacg  | atgaaggaat  | 2460 |
| ttacagagct | gggattcgaa  | ccccgcgcta  | ccgtcagttcc | atcccggct   | ctgtccagcc  | 2520 |
| ggtaccgcgc | gccgccttct  | tcctcccgca  | ccgtgacctt  | aactcggcac  | gtgctggccc  | 2580 |
| ctcggctcc  | ccagtctccg  | tacattgtcc  | cactcagctc  | tgattgtggg  | gagggggcgg  | 2640 |

|            |             |            |            |            |            |      |
|------------|-------------|------------|------------|------------|------------|------|
| accgaggggg | cggggggcgt  | cttccgaag  | gatcgccgaa | agccgcgcgc | tgccagggc  | 2700 |
| ccggggtag  | agacccccac  | tccgcacgg  | cgttagggac | tccgcgttc  | cccgcggcc  | 2760 |
| ccgcggcccg | ccggctctgc  | ctctgtccat | ggtcaaagca | cccggggtaa | tccgccttc  | 2820 |
| tcttcgccc  | gccgggcccc  | attcatattc | taatcacagc | gcccgcgacc | cgcgaacggc | 2880 |
| cactttatcg | gggcccgcag  | gagacgcagc | ttgctccccc | tcacttccac | ttccagcacc | 2940 |
| ccccggccct | cgcggccctc  | tttctgcact | ttcaactccg | ccgaggaggg | ggtcctggg  | 3000 |
| aaaaccgcgt | ccccacttgg  | atgccggggc | ttctcacaaa | cttcgaggcc | gactggggga | 3060 |
| cggcggtggg | gtggggaggg  | cagggggagg | gcggaggaac | agagacagac | agactgacag | 3120 |
| agttacggga | agaggcgggg  | gaggggggac | agtacagaga | gaccgagggg | gatagagaca | 3180 |
| gagaggggca | gagtcctagg  | gggagacaaa | gagaagtgg  | ggcagggtct | ggacagagac | 3240 |
| actacgagcc | aaggaaggag  | aatggacag  | agacagagac | acagaggacg | agagggacag | 3300 |
| agagctagaa | acagacacccg | ggagacaggc | ggagagagac | agcgagatgg | aaggagagaa | 3360 |
| acaggatgaa | ggacccaggg  | ccagaggaag | acagaaagtt | ctggaggagg | cgaaccagcc | 3420 |
| actcacctcc | tccccgccta  | gcggccttgt | tacgctcata | ttggggcatg | gggtcttagg | 3480 |
| gattcagttc | cccttccccca | ccctttcccc | ttcaagctcg | cttcactccc | cacgcgtgtc | 3540 |
| tgcggatccg | cgtcaaggg   | gtcaagacat | accccctccc | gcattctca  | ggccaccacc | 3600 |
| cgaaatctaa | cccaggacca  | aatgggggg  | tgggtggggg | cgcaagagaa | ggaagggagt | 3660 |
| ggggccccac | tcgtggtagc  | gcaggcgact | ccccaggctc | caggagttcc | ccggcgctcc | 3720 |
| ccccccgccc | gcgcggccct  | cccggcctgc | cagcacggcg | cggggcccg  | ttgtggggaa | 3780 |
| ggggccggag | ggggaggggg  | ccacatctaa | gccaattttg | atttcgccta | taatgagtgc | 3840 |
| cgggcgaagg | ctggagaagg  | cctctggaac | tttaaataag | aaaaacgttg | ctaatgttat | 3900 |
| aatagaaggg | ggaagtccga  | gggctggat  | tgcgtcgctc | tgagcccccc | tttcggagg  | 3960 |
| cggctttct  | tattcaaaaac | aggcccacaa | tggcattcac | a          |            | 4001 |

<210> 12  
 <211> 207  
 <212> DNA  
 <213> Mus musculus

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| gaggggggca | gatctaagcc | aattttgatt | tcgtctataa | tgagtgccgg | gctaaggctg | 60  |
| gagaaggcct | ctggaacttt | aaataagaaa | aacgttgcta | atgctataat | agaaggggaa | 120 |

agtcggaggg ctgggattgc gtcgctctga gcccccttt tcggaggcgg cttttcttat 180  
tcaaaacagg cccacaatgg gcttcac 207

<210> 13  
<211> 158  
<212> PRT  
<213> Danio rerio  
  
<400> 13

Met Leu Cys Gly Leu Leu Glu Glu Pro Asp Met Asp Ser Thr Glu Ser  
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Trp Ile Glu Arg Cys Leu Asn Glu Ser Glu Ser Lys Arg Phe Ser Ser  
20 25 30

His Ser Ser Ile Gly Asn Ile Ser Asn Asp Glu Asn Glu Glu Lys Glu  
35 40 45

Asn Asn Arg Ala Ser Lys Pro His Ser Thr Pro Ala Thr Leu Gln Trp  
50 55 60

Leu Glu Glu Asn Tyr -Glu Ile Ala Glu Gly Val Cys Ile Pro Arg Ile  
65 70 75 80

Ala Leu Tyr Met His Tyr Leu Asp Phe Cys Glu Lys Leu Asp Ser Gln  
85 90 95

Pro Val Asn Ala Ala Ser Phe Gly Lys Ile Ile Arg Gln Gln Phe Pro  
100 105 110

Gln Leu Thr Thr Arg Arg Leu Gly Thr Arg Gly Gln Ser Lys Tyr His  
115 120 125

Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp Val Met  
130 135 140

Tyr Ser Lys Lys Gly Ala Ala Trp Val Asn Glu Thr Gly Lys  
145 150 155

<210> 14  
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<213> Homo sapiens

<220>  
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 Met Asn Trp  
 1  
 118

gct gcc ttc gga ggg tct gaa ttc ttc atc cca gaa ggc att cag ata 166  
 Ala Ala Phe Gly Gly Ser Glu Phe Phe Ile Pro Glu Gly Ile Gln Ile  
 5 10 15

gat tcg aga tgc cca cta agc aga aat atc acg gaa tgg tac cat tac 214  
 Asp Ser Arg Cys Pro Leu Ser Arg Asn Ile Thr Glu Trp Tyr His Tyr  
 20 25 30 35

tat ggc att gca gtg aaa gaa agc tcc caa tat tat gat gtg atg tat 262  
 Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp Val Met Tyr  
 40 45 50

tcc aag aaa gga gct gcc tgg gtg agt gag acg ggc aag aaa gaa gtg 310  
 Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys Lys Glu Val  
 55 60 65

agc aaa cag aca gtg gca tat tca ccc cgg tcc aaa ctc gga aca ctg 358  
 Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu Gly Thr Leu  
 70 75 80

ctg cca gaa ttt ccc aat gtc aaa gat cta aat ctg cca gcc agc ctg 406  
 Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro Ala Ser Leu  
 85 90 95

cct gag gag aag gtt tct acc ttt att atg atg tac aga aca cac tgt 454  
 Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg Thr His Cys  
 100 105 110 115

cag aga ata ctg gac act gta ata aga gcc aac ttt gat gag gtt caa 502  
 Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp Glu Val Gln  
 120 125 130

agt ttc ctt ctg cac ttt tgg caa gga atg ccg ccc cac atg ctg cct 550  
 Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His Met Leu Pro  
 135 140 145

gtg ctg ggc tcc tcc acg gtg gtg aac att gtc ggc gtg tgt gac tcc 598  
 Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val Cys Asp Ser  
 150 155 160

atc ctc tac aaa gct atc tcc ggg gtg ctg atg ccc act gtg ctg cag 646  
 Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr Val Leu Gln  
 165 170 175

gca tta cct gac agc tta act cag gtg att cga aag ttt gcc aag caa 694

|   |     |     |      |
|---|-----|-----|------|
| Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe Ala Lys Gln |     |     |      |
| 180   | 185 | 190 | 195  |
| ctg gat gag tgg cta aaa gtg gct ctc cac gac ctc cca gaa aac ttg |     |     | 742  |
| Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro Glu Asn Leu |     |     |      |
| 200   | 205 | 210 |      |
| cga aac atc aag ttc gaa ttg tcg aga agg ttc tcc caa att ctg aga |     |     | 790  |
| Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln Ile Leu Arg |     |     |      |
| 215   | 220 | 225 |      |
| cgg caa aca tca cta aat cat ctc tgc cag gca tct cga aca gtg atc |     |     | 838  |
| Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg Thr Val Ile |     |     |      |
| 230   | 235 | 240 |      |
| cac agt gca gac atc acg ttc caa atg ctg gaa gac tgg agg aac gtg |     |     | 886  |
| His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp Arg Asn Val |     |     |      |
| 245   | 250 | 255 |      |
| gac ctg aac agc atc acc aag caa acc ctt tac acc atg gaa gac tct |     |     | 934  |
| Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met Glu Asp Ser |     |     |      |
| 260   | 265 | 270 | 275  |
| cgc gat gag cac cgg aaa ctc atc acc caa tta tat cag gag ttt gac |     |     | 982  |
| Arg Asp Glu His Arg Lys Leu Ile Thr Gln Leu Tyr Gln Glu Phe Asp |     |     |      |
| 280   | 285 | 290 |      |
| cat ctc ttg gag gag cag tct ccc atc gag tcc tac att gag tgg ctg |     |     | 1030 |
| His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile Glu Trp Leu |     |     |      |
| 295   | 300 | 305 |      |
| gat acc atg gtt gac cgc tgt gtt gtg aag gtg gct gcc aag aga caa |     |     | 1078 |
| Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala Lys Arg Gln |     |     |      |
| 310   | 315 | 320 |      |
| ggg tcc ttg aag aaa gtg gcc cag cag ttc ctc ttg atg tgg tcc tgt |     |     | 1126 |
| Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met Trp Ser Cys |     |     |      |
| 325   | 330 | 335 |      |
| ttc ggc aca agg gtg atc cgg gac atg acc ttg cac agc gcc ccc agc |     |     | 1174 |
| Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser Ala Pro Ser |     |     |      |
| 340   | 345 | 350 | 355  |
| ttc ggg tct ttt cac cta att cac tta atg ttt gat gac tac gtg ctc |     |     | 1222 |
| Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp Tyr Val Leu |     |     |      |
| 360   | 365 | 370 |      |
| tac ctg tta gaa tct ctg cac tgt cag gag cgg gcc aat gag ctc atg |     |     | 1270 |
| Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn Glu Leu Met |     |     |      |
| 375   | 380 | 385 |      |
| cga gcc atg aag gga gaa gga agc act gca gaa gtc cga gaa gag atc |     |     | 1318 |
| Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu Val Arg Glu Glu Ile |     |     |      |
| 390   | 395 | 400 |      |
| atc ttg aca gag gct gcc gca cca acc cct tca cca gtg cca tcg ttt |     |     | 1366 |
| Ile Leu Thr Glu Ala Ala Pro Thr Pro Ser Pro Val Pro Ser Phe     |     |     |      |

405

410

415

|   |      |
|---|------|
| tct cca gca aaa tct gcc aca tct gtg gaa gtg cca cct ccc tct tcc<br>Ser Pro Ala Lys Ser Ala Thr Ser Val Glu Val Pro Pro Pro Ser Ser<br>420 425 430 435 | 1414 |
| cct gtt agc aat cct tcc cct gag tac act ggc ctc agc act aca gga<br>Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly Leu Ser Thr Thr Gly<br>440 445 450     | 1462 |
| gca atg cag tct tac acg tgg tct cta aca tac aca gtg acg acg gct<br>Ala Met Gln Ser Tyr Thr Trp Ser Leu Thr Tyr Thr Val Thr Thr Ala<br>455 460 465     | 1510 |
| gct ggg tcc cca gct gag aac tcc caa cag ctg ccc tgt atg agg aac<br>Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys Met Arg Asn<br>470 475 480     | 1558 |
| act cat gtg cct tct tcc gtc aca cac agg ata cca gtt tat ccc<br>Thr His Val Pro Ser Ser Val Thr His Arg Ile Pro Val Tyr Pro<br>485 490 495             | 1606 |
| cac aga gag gaa cat gga tac acg gga agc tat aac tat ggg agc tat<br>His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr Gly Ser Tyr<br>500 505 510 515 | 1654 |
| ggc aac cag cat cct cac ccc atg cag agc cag tat ccg gcc ctc cct<br>Gly Asn Gln His Pro His Pro Met Gln Ser Gln Tyr Pro Ala Leu Pro<br>520 525 530     | 1702 |
| cat gac aca gct atc tct ggg cca ctc cac tat gcc cct tac cac agg<br>His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ala Pro Tyr His Arg<br>535 540 545     | 1750 |
| agc tct gca cag tac cct ttt aat agc ccc act tcc cgg atg gaa cct<br>Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr Ser Arg Met Glu Pro<br>550 555 560     | 1798 |
| tgt ttg atg agc agt act ccc aga ctg cat cct acc cca gtc act ccc<br>Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro Thr Pro Val Thr Pro<br>565 570 575     | 1846 |
| cgc tgg cca gag gtg ccc tca gcc aac acg tgc tac aca agc ccg tct<br>Arg Trp Pro Glu Val Pro Ser Ala Asn Thr Cys Tyr Thr Ser Pro Ser<br>580 585 590 595 | 1894 |
| gtg cat tct gcg agg tac gga aac tct agt gac atg tat aca cct ctg<br>Val His Ser Ala Arg Tyr Gly Asn Ser Ser Asp Met Tyr Thr Pro Leu<br>600 605 610     | 1942 |
| aca acg cgc agg aat tct gaa tat gag cac atg caa cac ttt cct ggc<br>Thr Thr Arg Arg Asn Ser Glu Tyr Glu His Met Gln His Phe Pro Gly<br>615 620 625     | 1990 |
| ttt gct tac atc aac gga gag gcc tct aca gga tgg gct aaa tga<br>Phe Ala Tyr Ile Asn Gly Glu Ala Ser Thr Gly Trp Ala Lys<br>630 635 640                 | 2035 |

|            |            |            |             |             |            |      |
|------------|------------|------------|-------------|-------------|------------|------|
| ctgctatcat | aggcatccat | attnaatatt | aataataata  | attaataata  | ataataaacc | 2095 |
| caacacccat | ccccagaag  | actttatctc | tatacattgt  | aactcatggg  | ctattcctaa | 2155 |
| gtgcccat   | tcctaata   | catgaggatg | gatcaatgt   | ggatgaata   | aacttttagt | 2215 |
| cagaaacagg | acttactaaa | agtcaatggg | actgggttc   | ttagccaag   | ccagacttga | 2275 |
| ctgtttctgt | agagcactat | ctcgcccagg | ccattctgtg  | cctttccct   | ctgttccatg | 2335 |
| actttgc    | ttgttggcaa | ccacttctag | taagctactg  | atttcctgt   | tgacaaaatc | 2395 |
| tcttagtct  | tgaaggatgg | atactggaga | cagaatctgg  | tttgttct    | tggatggca  | 2455 |
| cataattac  | caagagcatt | cacccgtcca | tctgtctgt   | cattgtactg  | tacaaggaac | 2515 |
| agccctcaga | cgtgttctgc | acatcccttc | ttcctggtgg  | taccatccct  | atttcctgga | 2575 |
| gcaccaggc  | taaatgggga | gctatctgga | aactctagat  | tttctgtcat  | acccacatct | 2635 |
| gtcacagtac | ctgcattgtc | ttggaaatgt | agcaactgtct | tgaggaaagg  | aagaggctg  | 2695 |
| ttctgtattt | ccttaagttt | attgagg    | tttggagact  | gtttcttcta  | catacaagga | 2755 |
| tttgtcttaa | gtttgcacaa | tggctagtgt | cagcaaaagg  | caggagaggg  | ttttgtttt  | 2815 |
| tttttaagt  | tctatgagaa | tgtggattt  | tggcattgag  | tatcacactc  | agctctgctg | 2875 |
| tgttaactt  | gtgaaactgg | atgaaacaaa | ctttaactt   | ccaagcacca  | agtgtgaaag | 2935 |
| tgactttcac | ggttccttca | taaaactata | ataatatccg  | acactttgat  | agaaaaaaat | 2995 |
| tcaaagctgt | gccttgagc  | ctatactata | ctgtgtatgt  | gtggaaataa  | aatgttattt | 3055 |
| tacttttgg  | gaatttttgg | taggcatttt | tctgtcagat  | ttgttagtaat | ttgtgagg   | 3115 |
| tgttagagat | taatataagg | tttctttctg | tattataaaa  | tgcaccaagc  | aattatgg   | 3175 |
| gacctattac | cctatggta  | agaaataaat | ggaaatatga  | catcgatgt   | ttcagcaact | 3235 |
| gttctgtaaa | taaaatctt  | gatcacacca | ctcagtgta   | taattgtgtc  | tacagctaaa | 3295 |
| atggaaatag | tttatctgt  | acagttgtgc | aagatatgaa  | tggtttcaca  | ctcaaataaa | 3355 |
| aaatattgaa | acga       |            |             |             |            | 3369 |

<210> 15  
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 <212> PRT  
 <213> Homo sapiens

<400> 15

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asn | Trp | Ala | Ala | Phe | Gly | Gly | Ser | Glu | Phe | Phe | Ile | Pro | Glu | Gly |
| 1   |     |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |

Ile Gln Ile Asp Ser Arg Cys Pro Leu Ser Arg Asn Ile Thr Glu Trp  
20 25 30

Tyr His Tyr Tyr Gly Ile Ala Val Lys Glu Ser Ser Gln Tyr Tyr Asp  
35 40 45

Val Met Tyr Ser Lys Lys Gly Ala Ala Trp Val Ser Glu Thr Gly Lys  
50 55 60

Lys Glu Val Ser Lys Gln Thr Val Ala Tyr Ser Pro Arg Ser Lys Leu  
65 70 75 80

Gly Thr Leu Leu Pro Glu Phe Pro Asn Val Lys Asp Leu Asn Leu Pro  
85 90 95

Ala Ser Leu Pro Glu Glu Lys Val Ser Thr Phe Ile Met Met Tyr Arg  
100 105 110

Thr His Cys Gln Arg Ile Leu Asp Thr Val Ile Arg Ala Asn Phe Asp  
115 120 125

Glu Val Gln Ser Phe Leu Leu His Phe Trp Gln Gly Met Pro Pro His  
130 135 140

Met Leu Pro Val Leu Gly Ser Ser Thr Val Val Asn Ile Val Gly Val  
145 150 155 160

Cys Asp Ser Ile Leu Tyr Lys Ala Ile Ser Gly Val Leu Met Pro Thr  
165 170 175

Val Leu Gln Ala Leu Pro Asp Ser Leu Thr Gln Val Ile Arg Lys Phe  
180 185 190

Ala Lys Gln Leu Asp Glu Trp Leu Lys Val Ala Leu His Asp Leu Pro  
195 200 205

Glu Asn Leu Arg Asn Ile Lys Phe Glu Leu Ser Arg Arg Phe Ser Gln  
210 215 220

Ile Leu Arg Arg Gln Thr Ser Leu Asn His Leu Cys Gln Ala Ser Arg  
225 230 235 240

Thr Val Ile His Ser Ala Asp Ile Thr Phe Gln Met Leu Glu Asp Trp  
245 250 255

Arg Asn Val Asp Leu Asn Ser Ile Thr Lys Gln Thr Leu Tyr Thr Met  
260 265 270

Glu Asp Ser Arg Asp Glu His Arg Lys Leu Ile Thr Gln Leu Tyr Gln  
275 280 285

Glu Phe Asp His Leu Leu Glu Glu Gln Ser Pro Ile Glu Ser Tyr Ile  
290 295 300

Glu Trp Leu Asp Thr Met Val Asp Arg Cys Val Val Lys Val Ala Ala  
305 310 315 320

Lys Arg Gln Gly Ser Leu Lys Lys Val Ala Gln Gln Phe Leu Leu Met  
325 330 335

Trp Ser Cys Phe Gly Thr Arg Val Ile Arg Asp Met Thr Leu His Ser  
340 345 350

Ala Pro Ser Phe Gly Ser Phe His Leu Ile His Leu Met Phe Asp Asp  
355 360 365

Tyr Val Leu Tyr Leu Leu Glu Ser Leu His Cys Gln Glu Arg Ala Asn  
370 375 380

Glu Leu Met Arg Ala Met Lys Gly Glu Gly Ser Thr Ala Glu Val Arg  
385 390 395 400

Glu Glu Ile Ile Leu Thr Glu Ala Ala Pro Thr Pro Ser Pro Val  
405 410 415

Pro Ser Phe Ser Pro Ala Lys Ser Ala Thr Ser Val Glu Val Pro Pro  
420 425 430

Pro Ser Ser Pro Val Ser Asn Pro Ser Pro Glu Tyr Thr Gly Leu Ser  
435 440 445

Thr Thr Gly Ala Met Gln Ser Tyr Thr Trp Ser Leu Thr Tyr Thr Val  
450 455 460

Thr Thr Ala Ala Gly Ser Pro Ala Glu Asn Ser Gln Gln Leu Pro Cys  
465                    470                    475                    480

Met Arg Asn Thr His Val Pro Ser Ser Ser Val Thr His Arg Ile Pro  
485                    490                    495

Val Tyr Pro His Arg Glu Glu His Gly Tyr Thr Gly Ser Tyr Asn Tyr  
500                    505                    510

Gly Ser Tyr Gly Asn Gln His Pro His Pro Met Gln Ser Gln Tyr Pro  
515                    520                    525

Ala Leu Pro His Asp Thr Ala Ile Ser Gly Pro Leu His Tyr Ala Pro  
530                    535                    540

Tyr His Arg Ser Ser Ala Gln Tyr Pro Phe Asn Ser Pro Thr Ser Arg  
545                    550                    555                    560

Met Glu Pro Cys Leu Met Ser Ser Thr Pro Arg Leu His Pro Thr Pro  
565                    570                    575

Val Thr Pro Arg Trp Pro Glu Val Pro Ser Ala Asn Thr Cys Tyr Thr  
580                    585                    590

Ser Pro Ser Val His Ser Ala Arg Tyr Gly Asn Ser Ser Asp Met Tyr  
595                    600                    605

Thr Pro Leu Thr Thr Arg Arg Asn Ser Glu Tyr Glu His Met Gln His  
610                    615                    620

Phe Pro Gly Phe Ala Tyr Ile Asn Gly Glu Ala Ser Thr Gly Trp Ala  
625                    630                    635                    640

Lys

<210> 16  
<211> 23  
<212> DNA  
<213> artificial sequence

<220>  
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<400> 16

aggtgggaag gcagttatga cag

23

<210> 17  
<211> 25  
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<220>  
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<400> 17  
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25

<210> 18  
<211> 28  
<212> DNA  
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<220>  
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<400> 18  
ggcagttatg acagttgaga agtagtag

28

<210> 19  
<211> 27  
<212> DNA  
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<220>  
<223> synthetic oligonucleotide primer

<400> 19  
ctgcttagtg ggcatctcgaa atctatac

27

<210> 20  
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<220>  
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<400> 20  
ttttgacggg tttggctttg

20

<210> 21  
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<220>

<223> synthetic oligonucleotide primer  
<400> 21  
ttcctccagt aacccacaat gc 22

<210> 22  
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<220>  
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<400> 22  
tggagaggcc acagctgctg g 21

<210> 23  
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<220>  
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<400> 23  
tcgaggcctg gtcctgtcgc 20

<210> 24  
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<220>  
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<400> 24  
cacagctgct ggcttcctgg 20

<210> 25  
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<220>  
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<400> 25  
acaactctgc gatgggctct gcttt 25

<210> 26  
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<400> 26  
ctgaccaatt tgacggcgct gcaca 25

<210> 27  
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ggccattgtc accactcgta a 21

<210> 28  
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cacaagtaaa ggctaacctcg c 21

<210> 29  
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<400> 29  
agccagtaat aagaactgca ga 22

<210> 30  
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<400> 30  
ggcactctta gcaaacctca gg 22

<210> 31  
<211> 21  
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<400> 31  
catggaaagg gcagagttag c 21

<210> 32  
<211> 21  
<212> DNA  
<213> artificial sequence

<220>  
<223> synthetic oligonucleotide primer

<400> 32  
ggccattgtc accactcgta a 21

<210> 33  
<211> 14  
<212> PRT  
<213> Homo sapiens

<400> 33

Met His Cys Gly Leu Leu Glu Glu Pro Asp Met Asp Ser Thr  
1 5 10

<210> 34  
<211> 14  
<212> PRT  
<213> Mus musculus

<400> 34

Met His Cys Gly Leu Leu Glu Glu Pro Asp Met Asp Ser Thr  
1 5 10

<210> 35  
<211> 14  
<212> PRT  
<213> Danio rerio

<400> 35

Met Leu Cys Gly Leu Leu Glu Glu Pro Asp Met Asp Ser Thr  
1 5 10

|            |   |      |
|------------|---|------|
| <210>      | 36  |      |
| <211>      | 223   |      |
| <212>      | DNA   |      |
| <213>      | Homo sapiens  |      |
| <br><400>  | 36  |      |
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| ctttcacccc | ttgttcaagt agcagctcat ttggtaaggg gtcaggaata aaggctt     | 120  |
| tcttccctct | ccatgtgtag gaaagttagc cttggtggtg gagagtcatt tctaaaata   | 180  |
| gatttccta  | atatggtcc aaagagagca agagtcagtc aca                     | 223  |
| <br><210>  | 37  |      |
| <211>      | 2208  |      |
| <212>      | DNA   |      |
| <213>      | Homo sapiens  |      |
| <br><400>  | 37  |      |
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| tgtctcaac  | gaaatgaaaa caaacgttat tccagccaca catctctgg gaatgttct    | 120  |
| aatgatgaaa | atgagaaaa agaaaataat agagcatcca agccccactc cactcctgct   | 180  |
| actctgcaat | ggctggagga gaactatgag attgcagagg ggtctgc catccgt        | 240  |
| gccctctata | tgcattacct ggatttctgc gagaagaatg atacccaacc tgtcaatgct  | 300  |
| gccagcttg  | gaaagatcat aaggcagcag tttcctcagt taaccaccag aagactcg    | 360  |
| acccgaggac | agtcaaagta ccattactat ggcattgcag taaaagaaag ctcccaat    | 420  |
| tatgatgt   | tgtattccaa gaaaggagct gcctgggtga gtgagacggg caagaaagaa  | 480  |
| gtgagcaa   | acagactggc atattcaccc cggtccaaac tcggAACACT gctgccagaa  | 540  |
| tttcccaat  | tcaaagatct aaatctgcc ggcaggctgc ctgaggagaa gtttctacc    | 600  |
| tttattat   | tgtacagaac acactgtcag agaatactgg acactgtaat aagagccaac  | 660  |
| tttgcatt   | ttcaaagttt cttctgcac tttggcaag gaatgccgcc ccacatgct     | 720  |
| cctgtgt    | gtcctccac ggtggtaac attgtcggcg tgtgtgactc catccctac     | 780  |
| aaagctat   | ccgggtgct gatcccact gtgctgcagg cattacctga cagcttaact    | 840  |
| cagggtatt  | gaaagttgc caagcaactg gatgagtggc taaaagtgcc tctccacgac   | 900  |
| ctcccagaaa | acttgcgaaa catcaagttc gaattgtcga gaaggttctc ccaaattctg  | 960  |
| agacggcaaa | catcaactaaa tcatctctgc caggcatctc gaacagtgtat ccacagtgc | 1020 |
| gacatcacgt | tccaaatgtt ggaagactgg aggaacgtgg acctgaacag catcaccaag  | 1080 |

|            |             |            |            |             |            |      |
|------------|-------------|------------|------------|-------------|------------|------|
| caaacccttt | acaccatgga  | agactctgc  | gatgagcacc | ggaaaactcat | cacccaatta | 1140 |
| tatcaggagt | ttgaccatct  | cttggaggag | cagtctccca | tcgagtccta  | cattgagtgg | 1200 |
| ctggatacca | tggttgacccg | ctgtgttgtg | aaggtggctg | ccaagagaca  | agggtccttg | 1260 |
| aagaaagtgg | cccagcagtt  | cctcttgatg | tggtcctgtt | tcggcacaag  | ggtgatccgg | 1320 |
| gacatgacct | tgcacagcgc  | ccccagcttc | gggtcttttc | acctaattca  | cttaatgttt | 1380 |
| gatgactacg | tgctctacct  | gttagaatct | ctgcactgtc | aggagcgggc  | aatgagctc  | 1440 |
| atgcgagcca | tgaagggaga  | aggaagcact | gcagaagtcc | gagaagagat  | catcttgaca | 1500 |
| gaggctgccg | caccaacccc  | ttcaccagtg | ccatcgaaaa | ctccagcaaa  | atctgccaca | 1560 |
| tctatggaag | tgccacctcc  | ctttccct   | gttagcaatc | cttccctga   | gtacactggc | 1620 |
| ctcagcacta | caggagcaat  | gcagtcttac | acgtggtctc | taacatacac  | agtgacgacg | 1680 |
| gctgctgggt | ccccagctga  | gaactccaa  | cagctccct  | gtatgaggaa  | cactcatgtg | 1740 |
| ccttcttcct | ccgtcacaca  | caggatacca | gttatcccc  | acagagagga  | acatggatac | 1800 |
| acgggaagct | ataactatgg  | gagctatggc | aaccagcatc | ctcacccat   | gcagagccag | 1860 |
| tatccggccc | tccctcatga  | cacagctatc | tctggccac  | tccactatgc  | cccttaccac | 1920 |
| aggagctctg | cacagtaccc  | tttaatagc  | cccaactccc | ggatggaacc  | ttgtttgatg | 1980 |
| agcagtactc | ccagactgca  | tcctacccca | gtcactcccc | gctggccaga  | ggtgccctca | 2040 |
| gccaacacgt | gctacacaag  | cccgctgtg  | cattctgcga | ggtacggaaa  | ctctagtgac | 2100 |
| atgtatacac | ctctgacaac  | gcgcaggaat | tctgaatatg | agcacatgca  | acactttct  | 2160 |
| ggcttgctt  | acatcaacgg  | agaggcctct | acaggatggg | ctaaatga    | .          | 2208 |

<210> 38  
 <211> 2214  
 <212> DNA  
 <213> Mus musculus

|          |            |            |            |            |             |             |     |
|----------|------------|------------|------------|------------|-------------|-------------|-----|
| <400> 38 | atgcattgtg | ggtaactgga | ggaacccgac | atggattcca | cagagagctg  | gattgaaaga  | 60  |
|          | tgtctcaatg | aaagcgagaa | taaacgctat | tccagtcaca | catctctggg  | aatgtgtct   | 120 |
|          | aatgatgaaa | atgagaaaaa | agaaaataac | agagcatcca | agccccactc  | cacgcccggcc | 180 |
|          | accctgcaat | ggctggagga | aaactatgag | attgctgagg | gctgtctgcac | cccccgac    | 240 |
|          | gccctctaca | tgcactacct | ggatttctgt | gagaagaacg | acactcagcc  | tgtcaatgct  | 300 |
|          | gccagcttg  | ggaagatcat | aaggcagcag | tttcctcagc | taaccaccag  | aagactcggg  | 360 |

|            |             |              |             |             |            |      |
|------------|-------------|--------------|-------------|-------------|------------|------|
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| cagtattatg | atgtgatgta  | ctcaaagaaa   | ggagctgcct  | gggtgagcga  | gacgggcaag | 480  |
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